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SUBDELTOID BURSITIS*

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Inflammation of the subdeltoid bursa, also spoken of as the subacromial bursa, produces a condition which varies from a moderate discomfort to complete disability of the shoulder, and is more frequently encountered than similar bursal conditions elsewhere in the body. When one considers the peculiar characteristics of the shoulder joint and the situation of this bursa it is only surprising that the affection is not seen more frequently. Varying in size from that of a dollar to about three inches in diameter, and being a thin-walled synovial sac, it lies partly beneath the deltoid muscle, partly below the caricoacromial ligament and acromion process, and over the shoulder joint and greater tuberosity of the humerus. Fibers of the supraspinatus tendon, before proceeding to be inserted into and about the greater tuberosity of the humerus, blend with the inferior portion of the bursal sac and form much of its floor. It is the only bursa in which one of the initiative motion ligaments of a joint forms its floor near or at its attachment to a tuberosity, and has above it an osseous projection which in certain extreme motions causes an impingement between it and the tuberosity; for this reason the bursa is frequently injured by unguarded movements.

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ETIOLOGIC FACTORS

Causative factors are trauma, direct and indirect, and infection. Direct trauma may be blows on the point of the shoulder over the greater tuberosity with the arm in abduction and falls upon the shoulder with the arm in marked abduction; indirect trauma, falls with the arm straight and abducted in which force is transmitted from the hand up the arm and the tuberosity is jammed under the acromion, and certain occupations and forms of athletics in which extreme elevation of the arm is required and the greater tuberosity is forced under the acromion. Such conditions either injure the bursa or produce minute rupture of the fibers of the supraspinatus tendon in the floor of the bursa or at its attachment to the tuberosity. Infection of the secondary type from a primary focus, I feel, holds an important place acting as it does in atrophic arthritis to which I think bursitis is akin, though other observers claim that such should not be considered. A history of direct trauma may be elicited though such is rare; however indirect trauma is often present though no specific incident may be recalled when the actual injury took place, and often the patient states that discomfort only started several days after the fall or blow. The onset is generally sudden, occurring during the night when the patient is awakened by a sharp pain in the region of the shoulder probably produced by an unguarded movement during sleep, or when rising in the morning pain is immediately experienced in the shoulder and all motions of the joint are restricted. Hoping that the condition will subside they generally wait several days before seeking

a physician's advice. The condition may be divided into an acute, a chronic and a chronic with adhesions. If the acute form is present the patient is seen supporting the elbow and arm of the affected shoulder with the other hand and forearm, and walking about rather than sitting still. Considerable difficulty is found in removing clothing to examine the shoulder. All motions are restricted, with less restriction in anterior and posterior extension and greater restriction in internal rotation, abduction and extreme adduction. Generally there is an abnormal fullness of the deltoid region due to distension of the bursal sac, and an actual tensity of the skin may be noted; palpation elicits a dull pain extending from the acromion process down over the deltoid, and a very acute pain just at the greater tuberosity and over the outer portion of the supraspinatus tendon; pain may extend down the arm and up over the shoulder to the neck; palpation anterior and posterior to the head of the bone is remarkably free of discomfort; moderate abduction of the arm gives temporary relief but the patient is apprehensive and attempts to discourage any further manipulations. The chronic form presents a subsidence of the acute symptoms but there is a constant dull pain about the shoulder especially at the point, and all motions are limited. Inability to abduct the arm is marked and when the arm is passively abducted the patient is unable to maintain abduction. Atrophy of the deltoid is present, and palpation of this area and that of the supraspinatus tendon produces acute pain; a fusiform mass may be felt just at or adjacent to the tuberosity, such a mass generally being a calcification in the fibers of the tendon forming the floor of the bursa. X-ray pictures taken with the greater tuberosity in profile show the calcification and may show the bursa to be distended; pictures should also be taken with the humerus rotated inwardly and outwardly to show if the calcified mass extends anterior or posterior to the tubercle. Pictures of the opposite shoulder may also show calcification though no discomfort may have ever been present; if such be the case it is rather strong evidence that gradual and repeated trauma produced enough damage to the tendon fibers to allow calcification. The chronic with adhesions form only differs from the former in that greater immobility and contractions are present, and atrophy has increased. Crepitation in the affected area may be felt, such crepitation being produced by adhesions in the bursal sac itself.

DIFFERENTIAL DIAGNOSIS

From the differential diagnosis standpoint there is one condition especially the symptoms of which simulate and often confuse in diagnosing the acute form, and this is rupture of the supraspinatus tendon. If the tendon has been ruptured there will be a history of a rather violent trauma to the shoulder and immediate inability to abduct the arm. Since the supraspinatus muscle and tendon initiate abduction of the arm such an injury prevents that motion being performed to say nothing of the pain incident to attempted motion. It is true that palpation elicits the same kind of pain in both conditions, but rupture of the tendon may be felt as a defect just above the tuberosity or just below the acromion process, whereas in a bursal condition no such defect is present.

Treatment of the acute form primarily should be rest of the part preferably on a supporting splint with the arm in moderate abduction to relieve tension on the distended bursa. Aspiration of the bursal contents followed by irrigation of the sac through needles inserted in the anterior and posterior portions of the bursa has been advocated; multiple needle punctures of the sac to allow the contents to escape, injections of novocain, normal saline solution and lipiodol to distend the sac and so break up adhesions, if any, have been reported as beneficial. Removal or at least reduction of foci of infection, especially chronic constipation, is certainly rational. Guaiacol carbonate in doses as used in atrophic arthritis has been valuable, and with me is routine; infra-red ray heat directed immediately over the bursa, and of uncomfortable intensity, for one hour daily is to be recom-

mended. After ten days to two weeks of support the splint may be discontinued and gentle massage and active motions of the shoulder started. Such medication and physiotherapy should be continued until no discomfort is present and a normal range of motion has been re-established, this requiring about six to eight weeks for accomplishment. The chronic form is more resistant to treatment and in this I also use guaiacol carbonate, massage and baking. If the palliative treatment does not suffice, and palpation and x-ray give evidence of considerable distension and calcification, then operation and exploration of the bursa should be resorted to. In operating, a median anterior incision, starting at the acromion process and curving forward and downward so as not to injure fibers of the deltoid, is advisable. By retracting the deltoid and rotating the humerus inward, the bursa will be brought into view and found to be considerably distended; incision of the sac allows the contents to squirt out; any adhesions in the bursal sac should be gently broken up and the sac irrigated with normal saline solution. This wound should be closed in layers. The chronic form complicated with adhesions should have gentle but firm manipulations of the shoulder preferably under a general anesthetic not only to break up the adhesions but also to stretch the contracted periarticular structures. As considerable atrophy is present in the muscles and humerus, care should be exercised in carrying out the manipulations lest fracture of the surgical neck be produced. Having secured the desired amount of mobilization, the arm should then be supported on a splint in moderate abduction for forty-eight hours; then moderate active motions and physiotherapy started. Cooperation of the patient in performing the corrective exercises prescribed is most important and on it depends the future usefulness of the joint; the prognosis is good but a maximum time of six months may be required for rehabilitation.

CASE REPORTS

Case 1. Mr. J. W. F., aged 57, gave a history of pain in left shoulder for several months. Occupation, electrician; work requires extreme elevation of arms for long periods. During past few weeks pain has gotten progressively worse. Examination showed limitation of motions, and considerable pain over deltoid region on palpation. X-ray showed considerable calcification in bursa on left, and slight in right. Diagnosis: chronic bursitis. Guaiacol carbonate and physiotherapy started on March 3, 1937, and continued till May 25 when motions were normal. Last seen September 28. Reported no return of discomfort.

Case 2. Mrs. E. H. M., aged 61, a housewife, who does most of her own work especially sweeping. Pain in region of left shoulder for five months, excessive at times; getting progressively worse; tendency to constipation; occasional sore throat though tonsils are apparently negative. Examination: Motions limited; pain at point of shoulder on pressure; unable to raise arm in abduction or maintain abduction; no history of fall or other injury; no crepitation. Diagnosis: chronic bursitis. Guaiacol carbonate, physiotherapy, mild cathartics, balanced diet started on February 4, 1937, continued till June 28, when patient was symptom free. Advised to continue diet and cathartics. On October 23 reported no discomfort.

Case 3. Miss M. D., aged 19, helps in housework at home. Admitted to hospital on February 13, 1938. Five days previously a window screen fell on point of right shoulder while arm was extended out window; no pain at time of blow or subsequently till four days later; the night previous to admission she awakened with severe pain in right shoulder; had to take a sedative. Examination: Arm held at side and supported with opposite hand and arm; palpation showed fullness in deltoid region; acute pain just at tuberosity; all motions greatly limited; sore throat; constipated. Diagnosis: Acute bursitis. Arm was placed on semi-abduction splint and hand and forearm with sling; saline gargle; mild cathartic; guaiacol carbonate; physiotherapy ordered. Splint discontinued on February 25, 1938. Discharged from hospital on March 4 to clinic. Discharged from clinic on April 8, 1938 symptom free.

Case 4. Miss M. J., aged 18, salesgirl. Admitted to hospital on January 1, 1938. One week previous to admittance fell while skating, catching self on hand with arm straight; slight discomfort in left shoulder for short time; no further discomfort till January 10, 1938. Shoulder then began to hurt and all motions became increasingly painful, and she had to stop work. Examination showed all motions greatly restricted and very painful; considerable fullness over deltoid, palpation causing very acute pain especially at point of shoulder; tonsils enlarged and moderately inflamed; patient very apprehensive of pain and fearing to take supporting hand and arm from affected arm. Diagnosis: Acute bursitis. Supporting abduction splint and sling applied to arm. Saline gargle, alkalinizing drinks, guaiacol carbonate, physiotherapy pre-

scribed. Splint discontinued on January 24. Discharged from hospital on February 8, being practically symptom free and having been able to help in ward work with other patients. Did not report to clinic, and has not been heard from since leaving hospital.

DISCUSSION

Dr. Guy A. Caldwell (New Orleans): Dr. McIlhenny has certainly given us a timely and excellent review of subdeltoid bursitis. Many cases, however, are more puzzling and difficult to handle than this discourse would indicate. It is true that many in the acute stages give rather spectacular results, when treated as Dr. McIlhenny has suggested. Others have such mild symptoms and disability that it is difficult to get the patient to undertake treatment.

The differential diagnosis of chronic or subacute subdeltoid bursitis from true neuritis or periarthritis is sometimes very difficult. Pain radiating down the arm and to the side of the neck, limited shoulder movements and tenderness of slight degree, not localized to the bursa, indicate periarthritis which is seen more often than subdeltoid bursitis. Periarthritis demands a little different treatment: manipulation under anesthesia followed by suspension and traction or by splinting and physiotherapy of a suitable type.

The treatment of chronic subdeltoid bursitis which requires operation is not complete when the operation has been done. The removal of the calcium deposit that we see in the roentgenogram does not constitute the entire procedure. It is nearly always essential to manipulate the joint to break down adhesions and to follow this with suspension and traction in abduction together with heat and active exercises.

Dr. Muir Bradburn (New Orleans): I was interested in the emphasis which Dr. McIlhenny laid on the infection. It has been my experience that infection plays a small part in the cases of subdeltoid bursitis. Of course most of the cases I have seen have been from direct trauma: a fall on the shoulder, or from indirect trauma with rupture of the supraspinatus. In one case I thought I was mistaken. This lady whose husband reported that the condition had been greatly improved by the removal of a tooth (the skiagram of which showed no apical abscess), against which I had advised, reported two days ago. Not only was she having difficulty with the subacromial bursa but with the bursa of the coracobrachialis as well. This was easily distinguished by the anterior prominence in which one could detect fluctuation.

Diagnosis is very difficult at times. You cannot always detect swelling.

Dr. Caldwell called attention to the difficulty of diagnosis in distinguishing these cases from neuritis. I have one case now, three months following a rupture of the supraspinatus tendon, associated with a median neuritis which was not present at the onset but occurred about ten or eleven weeks after the accident.

I have nothing else to add except to stress again that trauma plays a large part and infection a negligible part in the production of subacromic bursitis.

Dr. Nathan Polmer (New Orleans): Shakespeare has told us that "a rose by any other name would smell as sweet," and I see that the orthopedic surgeons and those physicians of our city who have encountered these conditions of painful shoulders, whether it be a bursitis, a rupture of a supraspinatus tendon, periarthritis or neuritis, are of the opinion that the fact remains that by any other name the pain and disability and limitation of motion, would be the same.

In a study of one hundred cases which I have treated at Touro Infirmary, we have found that infection or possible infection could be present in fifteen per cent of the cases. We feel that often repeated minor traumas, as occupational traumas when working with the elbow flexed, arm abducted, would continually irritate the subdeltoid bursa area and calcification would set in. I am glad the doctor recommended conservative type of therapy. In conservative treatment, physiotherapy plays an important part; rest for the inflamed or injured part, heat with an infra-red lamp, have both shown fair measures of success. Personally, I prefer diathermy in order to get an active hyperemia within the bursa area. Sometimes the patients complain of pain after treatment and we think this is caused by increased hyperemia.

I have four slides I would like to show in connection with this discussion. (Slides shown).

Dr. John T. O'Ferrall (New Orleans): I have heard many of our fellow surgeons discourage surgery in this condition because of difficulty in exposing the bursa. I do not know of anything easier than to expose the subdeltoid bursa. It is simply a matter of making an incision of the skin and separating the fibers of the deltoid and you are right on the bursa. The next membrane that you open is the floor of the bursa. I believe surgery has a distinct place in the treatment of some of these cases and certainly in cases of ruptured supraspinatus tendon.

It is interesting to note that no one mentioned what the so-called calcified mass really is. Stern, of Cleveland, has had the opportunity to open the subdeltoid bursa and recover the so-called calcareous deposit, but the laboratory reported that it was amorphous fat and not calcification. Shadows are cast just as if it were calcareous in nature but as a matter of fact it is not.

These cases are intensely interesting and the differential diagnosis between bursitis, whether calcified or not, and rupture of the supraspinatus tendon is extremely important. There are many cases in which the compensation laws demand differential diagnosis. I had the opportunity just recently to demonstrate the rupture of supra-

spinatus and, upon exposing the joint, found the fragments of the tendon very easily and sutured them. One patient made complete recovery; the other was operated on just a week ago.

Dr. Paul A. McIlhenny (In closing): I purposely mentioned infection last as a causative factor. There is no doubt whatsoever in my mind, and in the minds of the majority of those interested in the subject who have written on it, that trauma is primarily, in the majority of cases, the exciting causative factor. However, because I have seen a number of cases in which no trauma could be elicited, even from an occupational standpoint, and foci of infection have been found, I was rather emphatic in my belief that the infection played a rather important part. This position has been materially strengthened by the fact that such cases do improve more rapidly when the focus of infection has been removed or at least decreased over those in whom possible infection has been ignored. I therefore reiterate that foci of infection should be cared for.

SOME GYNECOLOGIC PROBLEMS OCCURRING DURING THE REPRODUCTIVE PERIOD*

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It is believed that the onset of menstruation initiates the reproductive period in women and terminates some time during the fifth decade of life. Variations occur in these limits, but they are still entirely within normal range. During this period constant physical and physiologic changes are occurring within the uterus and vagina. The normal ovary responds to hormonal stimulation, as evidenced by the formation of graafian follicles and the corpora lutea; therefore, the ovary also undergoes physical changes constantly during the menstrual cycle.

The surgical problems that arise in the female genital tract before women are forty years of age must be considered with the view of conserving, in so far as possible, both the reproductive function and the menstrual function. In this connection my colleague, W. J. Mayo, once said: "The generative organs of women are for the purpose of reproduction. The ovary controls the physiologic cycle, the uterus receives and carries the impregnated ovum to term. The uterus is often blamed for troubles with which it really has little to do. The curet is a much abused instrument. The endometrium is relatively seldom diseased and a high percentage of menstrual disturbances are ovarian and tubal in origin. A sufficient distinction is not made between irregular bleeding from the uterus and true menstruation. Menstrual blood does not clot. If the blood forms true clots, the endometrium may be suspected, otherwise the ovary."

Among the conditions which frequently interfere with the normal physiologic function of the genital tract and which may require surgical treatment are benign tumors of the uterus, endometriosis, retrodisplacements and ovarian neoplasms.

BENIGN TUMORS OF THE UTERUS

The benign tumors of the uterus with which we are concerned are leiomyomas and adenomyomas. It is rare to encounter these tumors among women who are less than 25 years of age but the incidence increases progressively to the fourth decade of life. The incidence is definitely greater among women who have never been pregnant and it is on record that it is much greater among women of colored races than it is among white women, the ratio being about 9:1. Seventy-five per cent of colored women beyond 35 years of age have myomas especially if they have not had children. The tumors are usually multiple; single myomas rarely are encountered, probably in not more than 5 per cent of cases. Not all benign tumors will require treatment, but surgical treatment will be necessary in many cases, as a result of degenerative changes, pressure symptoms and hemorrhage.

The situation of the myoma in relation to the uterus is important in selecting the type of surgical treatment. Most myomas are found in the body of the uterus either on the anterior or posterior wall. They are

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considered to originate within the myometrium and their ultimate situation is determined by their direction of growth, which may be toward the uterine canal or toward the surface of the uterus. Those which develop high in the fundus and extend toward the peritoneal surface seldom cause any difficulty during a myomectomy, which is the operation of choice unless the uterus has been hopelessly destroyed by the growths. Difficulty does arise when the tumors originate in the lower portion of the fundus and extend laterally into the broad ligaments, or anteriorly into the base of the bladder or posteriorly into the cul-de-sac or into the folds of the mesocolon. If one does not wish to remove the uterus, some very serious problems arise. For instance, laterally the uterine artery and veins pass either in front or behind the base of the tumor and it often is safer to divide them rather than risk severe bleeding by retracting the vessels. The ureter in such instances is pushed from its normal position and unless it is visible it is likely to be injured. Tumors that extend anteriorly near the base of the bladder usually are rather firmly attached to the wall of the bladder. It has been my experience that if much injury to the wall of the bladder occurs during removal of the tumor it is safer to excise the segment of bladder that is attached to the tumor than it is to take the chance of producing a vesical fistula. The bladder can be safely closed with two rows of catgut sutures. The tumor that grows posteriorly under the peritoneum of the cul-de-sac is rare, but when it does occur its removal without hysterectomy is likely to produce pain from subsequent fixation of the uterus.

Myomas that grow toward the uterine cavity are often difficult to identify unless they are 4 to 5 cm. or more in diameter or become extruded through the external os. These tumors tend to undergo degeneration and to become soft and necrotic. Profuse and prolonged bleeding at the menses occurs frequently and is associated with severe secondary anemia. At examination these tumors may be overlooked since the contour of the uterus is normal. The patients too often are given a castrating dose of radium or roentgen rays. In cases in which the patients are less than 40 years of age the myomas should be removed surgically. Many submucous myomas can be extracted by grasping the tumor with a tenaculum and twisting it gently. Bleeding is rarely a troublesome factor and can be controlled by a uterine pack. Myomas of large size can be adequately approached by a vaginal hysterotomy. This is the safest method if there are multiple submucous tumors. If there is no infection but if there are other tumors in the myometrium, abdominal myomectomy is the preferable operation. When there is much infection, as there always is in submucous pedunculated myomas, an abdominal myomectomy, if indicated, should be delayed several weeks or months, that is, until all infection has subsided.

The bleeding and the foul vaginal discharge which so often are noted in connection with a pedunculated vaginal myoma may be mistaken for carcinoma of the cervix. In the latter condition the prognosis naturally would be altered considerably. Manipulation of these sloughing myomas must be accomplished without instruments. The tumor may be pulled into view by the hand and its pedicle examined with the finger. The pedicle is clamped adjacent to the wall of the uterus and excised. Bleeding can be controlled by leaving the forceps attached or by packing the uterus with gauze.

I wish to emphasize that the discovery of one or two small myomas during the course of examination is not an indication for their immediate surgical removal; such tumors may remain symptomless for years and the patient even may become pregnant several times without any harm being done. Many patients with small symptomless fibroids are treated with radium when the indications are not sufficient, and in fact when this form of therapy is contraindicated. In the treatment of the healthy young woman who has a myoma, radium is a very destructive method and one that is not considered conservative.

Pain and discomfort associated with small benign tumors of the uterus are

usually significant of adenomyomas, especially if the discomfort is intense at the time of the menses. The distress in these instances tends to diminish slowly following menstruation. It is important to distinguish clinically, so far as possible, between adenomyomas and leiomyomas. The former rarely assume a submucous or a subperitoneal position since they are intimately attached to the myometrium. There are no cleavage planes as in fibromyomas and they must be excised by sharp dissection. These tumors become quiescent following the menopause but during the reproductive period of life, surgical removal is often necessary since these tumors become activated to a certain extent by ovarian stimulation.

Adenomas may be discrete within the uterus or diffuse; they often are designated as internal and external adenomyosis. This condition is frequently referred to as endometriosis owing to its resemblance to the endometrium. In addition to discrete adenomyomas within the uterus, the question of the proper treatment becomes more complicated when there are diffuse implants involving the ovaries, posterior surface of the uterus and the peritoneum of the cul-de-sac and rectum. The process increases progressively and the most severe involvement is encountered between the ages of 30 and 35 years. However, during recent years the condition has been observed among patients who were considerably less than 30 years of age, which probably reflects more accurate diagnosis as a sequel to the general interest in this disease. It is of interest that the majority of these patients are sterile, or if they have had children subsequent sterility apparently is associated with the onset of the endometriosis. The explanation seems to be that the adnexa become adherent under the broad ligament and implantation on the ovary and the production of hemorrhagic cysts interfere with ovulation. The fallopian tubes, except for adherence of the fimbriated ends, are remarkably free from the disease. It is rare to find only one of the adnexa involved; in such cases there are implants on the uterosacral ligament and the uterus or rectum.

TREATMENT

The treatment is surgical and should be conservative in type whenever the process is not extensive, but those in whom conservatism is possible, I believe, will not exceed 50 per cent. In cases in which the lesions are extensive, complete removal of the pelvic organs is necessary even though the patients may be less than 40 years of age. Conservative surgical methods, which have a better chance of success in cases of early involvement, consist of local excision of the implants and resection of both ovaries, or perhaps removal of one of the adnexa. It has been my experience that the relief from dysmenorrhea is more complete if, in addition to local excision, a resection of the presacral nerve is performed. Since pain is evidence of recurring trouble I believe that many patients can be kept rather comfortable by this method until later years in life when they can be relieved by a castrating dose of roentgen rays or by radical surgical measures without producing too great an emotional imbalance. If the disease is so diffuse as to require complete removal of all the pelvic organs and if the patient is a young woman, it has been my custom to save the healthiest portions of both ovaries, shave them into fine segments and transplant them above the rectus fascia adjacent to the perforating blood vessels in the abdominal fat. These segments of the ovaries grow and become active in about eight weeks; the activity occurs four or five days each month coincident with ovulation. The patient may experience an artificial menopause until the grafts are growing, then the patient is either partially or completely relieved depending upon the success of the graft. Should the graft become cystic or painful they are very accessible just beneath the skin and can be excised or destroyed by application of radium. So far I have not found it necessary to remove any graft. A small clot formed in one corpus luteum cyst which was easily evacuated without harm to the graft.

RETRODISPLACEMENT

One of the most frequent abdominal surgical procedures in young women is some attack upon a retroverted uterus, which I am sure is performed without sufficient evidence that relief will be obtained since the uterus is often blamed for troubles with which it has little to do. It must be remembered that the uterus may be in a retroverted position in 30 to 40 per cent of unmarried young women, but it is not adherent in that position. The explanation of this condition is found in the faulty attachment of the pelvic fascia to the uterus, above the uterine artery. There is nothing to prevent the uterus from moving back and forth so it is just as normal in one position for a time as it is in any other position.

The faulty development in the pelvic fascia is somewhat peculiar to the nervously exhausted or psychoneurotic type of patient whose abdominal organs are generally ptosed. The menses are frequently irregular as a heritage from glandular dysfunction and there is dysmenorrhea of the primary type. The physical condition of these young women is easily influenced by their social and economic status; they are unable to be on their feet long periods at a time or to be employed in positions that require considerable nervous energy. Since the majority of them have pelvic discomfort and perhaps irregular menses, the generative organs are accused of producing the entire syndrome. Surgical correction of this type of retroversion invariably fails to accomplish the desired result.

Fixed retroversion from any cause is an entirely different condition and its surgical correction is usually indicated. The most frequent type is that which occurs after pelvic inflammatory disease, either specific or non-specific, and the next most frequent type probably is that caused by endometrial implants. The surgical problem involved is usually more than the correction of the retroversion. Other pathologic conditions must be dealt with in such a manner as to conserve both the menstrual and reproductive functions and so as not to interfere with subsequent pregnancies.

An intra-abdominal operation for the correction of retrodisplacement is one of the most frequently performed gynecologic operations in both the nulliparous and multiparous woman; it often is performed without sufficient indication. If the patient is a multiparous woman and the retrodisplacement is uncomplicated, I seriously doubt whether one ever is justified in performing an intra-abdominal operation for simple correction of the position of the uterus and certainly there is still less justification to do a combined vaginal plastic repair and an internal shortening of the round ligaments. The explanation is that the correction of the position of the uterus can be more safely and permanently accomplished by the vaginal route in connection with a repair of the cystocele and the pelvic floor. This requires a complete knowledge of the pelvic fascia and its normal attachments to the uterus, cervix and bladder.

Vaginal plastic operations during the reproductive period of life must be carefully considered and meticulously performed so as to restore the normal anatomic relation of the parts and to avoid subsequent dystocia. It is often prudent judgment to postpone vaginal plastic repair until later in life or until subsequent pregnancy is not anticipated. When surgical correction is necessary for relief of symptoms it seems to me that either the Manchester operation or a vaginal plastic repair with a Sturmdorf amputation of the cervix is the operation of choice, since neither procedure interferes seriously with future pregnancy and delivery. The Manchester operation is the one preferred in England for all degrees of relaxation and prolapse at any age. Its popularity certainly is increasing in this country and I believe it is sufficiently effective to supplant most operations for cystocele and rectocele. Its greatest usefulness seems to me to be in cases of moderate descensus and not in cases of complete prolapse.

OVARIAN NEOPLASMS

Ovarian neoplasms constitute one of the most interesting and most important groups of conditions in gynecology. The

variation in their histologic character and in their manner and rate of growth greatly influences the surgical treatment. They may be benign or malignant and some are classed as of questionable nature. The frequency of their occurrence varies with the age of the patient. For example, it is rare to discover a malignant ovarian neoplasm in a case in which the patient is less than 35 years of age but it can and does occur. If the tumor is encountered beyond this age or after the age of fifty years the possibility of a malignant neoplasm increases progressively. As a matter of fact, in cases in which the patients are more than 50 years of age it is most uncommon to find an ovarian neoplasm that is not malignant. The most common ovarian neoplasms encountered in the third and fourth decades of life are cystadenomas and adenomyomas, both of which are benign. The surgical treatment of the latter type has already been considered.

The cystadenoma arises in the substance of the ovary, in contradistinction to simple follicular cysts. It contains a watery or mucoid material and is sterile. A cystic tumor that fills the abdomen of the child or young woman is likely to be of this type. It is unfortunate that in cases in which these cystic tumors affect young women the tumors are often classed as papillary cystadenomas, that is, as malignant tumors; as a result of this classification, many radical pelvic operations are needlessly performed. Many small simple ovarian cysts also are removed under the assumption that they are cystadenomas. It is important to remember that in young girls, at least, many of these simple cysts rupture and disappear spontaneously, but if they continue to grow they may be regarded as cystadenomas or possibly as malignant papillary cystadenomas. The gross appearance of a cystadenoma and a papillary cystadenoma may be the same. The latter is malignant and the grade of malignancy must be determined by immediate histologic examination. The importance of such information is that in about 50 per cent of the cases these tumors involve both ovaries. If one ovary of a young woman appears normal while the other is malignant, and if the ovary which is apparently normal is left in situ, frequent observation in the next few years is imperative. This statement is predicated on the basis that all papillary epithelium, wherever situated, is regarded as malignant although the grade of malignancy may be relatively low.

When malignant neoplasms, such as papillary adenocarcinomas, carcinomatous cystadenomas, solid carcinomas and carcinomatous dermoids are discovered in the third and fourth decades of life, although their occurrence is somewhat rare at this age, the treatment is exactly the same as that employed when they occur in the later decades of life. The reproductive function must be disregarded under such circumstances because the life of the patient is being threatened. An immediate, complete histologic examination should be made in every case of adnexal neoplasm unless the gross appearance of the neoplasm confirms its nature, since a highly malignant tumor not infrequently may be situated within a mass of harmless looking tissue. For example, it is not uncommon to find adenocarcinoma, grade III or IV, within a hemorrhagic chocolate cyst whose base may be adherent to the lateral pelvic wall. Surgical treatment then should be radical and possibly should be followed by roentgen therapy.

There is a group of tumors that now are being seen commonly. Their histologic appearance is of questionable nature, but they are of further interest owing to their hormonal influence. These are granulosa cell tumors, arrhenoblastomas and disgerminomas.

Up to 1930 only 43 cases of granulosa cell tumors had been reported, but since then more than 300 cases have been added to the literature. This indicates that the probable presence of such tumors has often been overlooked. While about 50 per cent of such tumors are observed beyond the menopause, at least a third occur during the childbearing period of life and some even occur before the age of puberty. Accord-

ing to Dockerty, who has recently studied our material at The Mayo Clinic, the tumors produce a temporary sterility, and normal ovarian function is in abeyance but not permanently affected because pregnancy has followed removal of the tumor.

The histologic nature of these tumors has caused considerable confusion since some regard them as possibly malignant and others as benign, although mitotic figures are occasionally seen. Recurrence or metastasis has not occurred following simple excision of these tumors; this information is extremely useful in dealing with these tumors before the age of puberty and in the reproductive period of life. Radical operation is therefore contraindicated.

Arrhenoblastoma is a masculinizing ovarian neoplasm encountered in the reproductive period of life. It is important to recognize this tumor clinically and to remove it early. Its presence should be suspected in cases in which amenorrhea, hypertrophy of the clitoris, hirsutism, atrophy of the breasts or changes in the voice occur, and in cases in which there is a palpable ovarian tumor.

Most authors agree that 90 per cent of these tumors are benign but about 10 per cent will show varying numbers of mitotic figures; however, metastasis has not been observed in cases in which mitotic figures were present. Simple excision is indicated in the great majority of cases but some consideration regarding radical hysterectomy must be given in the small group of cases in which mitotic figures occur. The importance of immediate microscopic examination of the tissue of such tumors is of more value than the gross appearance.

Disgerminomas are important because they usually occur in the second decade of life. They are sexually indifferent but from a histologic viewpoint are highly malignant, although their clinical course is relatively benign. The same type of tumor that also occurs in the male is, on the other hand, highly malignant, thereby conforming to its histologic picture. In the female such tumors may be unilateral or bilateral. If they are unilateral only simple excision is indicated, but if both ovaries are involved a complete hysterectomy is indicated.

If metastasis is associated with bilateral involvement, extensive roentgen therapy is in order, since the cells of these tumors are regarded as very radiosensitive. Metastasis, although it has been reported, is the exception and not the rule. The difference in the clinical behavior of these tumors in the male and female is not understood, but their recognition is extremely important in administering the proper treatment.

SUMMARY

Leiomyomas and adenomyomas (endometriosis) present some of the most difficult surgical problems during the reproductive period of life. Myomectomy and adenomyomectomy are the only conservative surgical procedures applicable, but radical hysterectomy may be advisable if the tumors have extensively destroyed the uterus. Radical operation also may be the logical procedure in extensive endometriosis, but ovarian transplantation to the abdominal wall in the second and third decades of life may be beneficial.

Intrapelvic operations for retrodisplacement in the young adult and particularly in the nulliparous patient must be undertaken with considerable caution. Vaginal plastic operations are preferable to abdominal procedures for retrodisplacement and descensus in the multiparous woman. The Manchester operation is preferable in the childbearing period.

An immediate histologic examination of all adnexal tissue is desirable to ascertain the presence or absence of malignancy, and if the tissue is found to be malignant it is highly important to know the cell type in order to apply the proper surgical procedure and also to obtain some information regarding the necessity of postoperative roentgen therapy.

DISCUSSION

Dr. H. W. Kostmayer (New Orleans): My first impression as Dr. Counseller went along was that he outdid me in conservatism, and I have prided myself on my conservatism. However, we are not quite as conservative in dealing with myomatous uteri as apparently Dr. Counseller is. It gives us

something to think about. Perhaps we are more radical than we need be in dealing with adenomyomata.

My second, and lasting impression of this presentation is that it represents the work of a profound student, as all know him to be, and it has given us many things to think about, so many that I would have to have more time than you will permit me, and would require more knowledge than I possess, to discuss it fully.

I have been especially interested in his discussion of the surgical problems connected with displacement of the uterus during the childbearing period, and while I hold a different opinion as to whether displacement of the uterus during the childbearing period should be attacked intra-abdominaly, if at all, I nevertheless feel we have been given a real treat.

Dr. Conrad G. Collins (New Orleans): There are two other types of ovarian tumors that we have encountered in the last two years, which produce masculinization or femininization of the patient.

The first that I wish to discuss is the adrenal cell rest. These tumors have a masculinizing effect upon the woman and she develops amenorrhea, hypertrichosis, enlargement of the clitoris, and a characteristic male voice. Clinically, one is unable to differentiate these tumors from the arrhenoblastoma, which type of tumor produces the same symptoms. The differential diagnosis can be made only upon microscopic section. Thus far, there have been only 19 of these tumors reported in the literature.

The other type of tumor, two of which I have removed during the past year, is the theca cell tumor. These tumors, until two or three years ago, were classified as fibromas with fatty degeneration. Grossly, they resemble fibromas but are of a deep yellow color. They arise from theca cells and have a definite effect upon the hormonal balance, producing amenorrhea of varied periods followed by menorrhagia. Microscopically, they closely resemble fibromas, but differ in that they contain intracellular as well as extracellular lipoid material. This lipoid material is a doubly refractile cholesterol ester, and this type of lipoid is only found in tumors producing an endocrine dysfunction and is not found in the Brenner tumors or in disgerminomas. The theca cell tumors are benign and removal is sufficient to produce a clinical cure.

Dr. Virgil S. Counseller (In closing): I wish to thank those who have taken part in the discussion and whose material has added greatly to my consideration of this subject. When I was in England about two years ago I had the privilege of visiting Victor Bonney. His work in pelvic surgery has distinguished him as one of the leading surgeons of his country. He favors myomectomy more than most surgeons favor it; in fact, he prefers myomectomy when others might favor hysterectomy. I am certain conservatism in the surgical treatment of myomas of women before the age of forty years needs to be reëmphasized.

Dr. Collins has emphasized the hormonal influence of some ovarian tumors and in this connection has referred to the adrenal cell rests. These tumors are of great importance and it should be mentioned that it is often difficult to distinguish some of them from primary adrenal tumors, for the two have certain characteristics in common. Furthermore, Dr. Collins' reference to theca cell tumors is timely.

THE CONSTITUTIONAL PSYCHOPATH AS A COMMUNITY PROBLEM*

T. H. PARGEN, M. D.

JACKSON, LA.

Since the beginning of time every community, no matter how small, nor how isolated, has been faced with a very vital question; namely, what disposition to make of its undesirables—the misfits who, due either to social, moral, mental or physical defect, were unable to approach the hypothetical normal adult near enough to adjust themselves to the common good of the whole. In the early recordings of history these people were either destroyed pre-emptorily, or cast out of the group to shift for themselves. Being so ill equipped, of course they were unable to survive this ostracism. Down through the ages with the evolution of social customs, acquirement of knowledge and the making of laws, punishment by incarceration and sometimes death gradually developed as the complete solution of this all important problem, and this disposition continued until less than two centuries ago when there occurred the first effort to divide the group. In France, in 1790, Pinel was going into the prisons, striking irons from those of the prisoners who were insane, and beginning the movement for special places of confinement for the individuals who were psychotic. From then until the present, society has evolved two systems of restraint: prisons for the criminals, mental hospitals and colonies for the insane, mental defectives and epileptics. This, obviously, is very good, as far as it

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goes, but we all realize that it is not sufficient, because there is a large group of maladapted people who are not cared for with these facilities.

PERSONALITY GROUPS

For purposes of illustration, society might be divided into: first, the normal and the abnormal. The abnormal, in turn, is subdivided as follows: the criminal, the psychotic, with associated mental deficient and epileptic, and a third group which has been variously named, but loosely referred to as the psychopaths. In searching the literature one is amazed and baffled that a group so important has been ignored by some authorities, casually touched by others and its existence practically denied by still others. It is true that such a diagnosis may be unsatisfactory, and even unscientific, but we all know only too well that such a group does exist and does give an untold amount of trouble to every agency, social, legal, or medical, which contacts it. So, why not stop quibbling over terminology and attempt to do something about it. True, the condition is hard to label because it hinges on personality defect, and just as every normal personality differs in some respect from the next, so every defective personality would present a different picture to another. Readily then one conceives a heterogeneous group in which there is no specific type of mental reaction such as there is in the affective disorders, but in which they run the gamut of manifestations. Strecker chooses to call them the "individuals who habitually misbehave and are ill equipped from birth to meet the demands of their environment." This, to me, seems a good point for enlargement, namely, in what manner are they ill equipped? There is no intellectual involvement as seen in the mental deficient, because none of these people show a lowered I. Q. In fact, many of them are well above a normal quotient. They do not seem to have stability in their emotional fields; their acts, therefore, become completely unpredictable. They are impulsive and consequently do very unwise things, showing an absolute lack of judgment. The characto-logic defect of the make-up is here quite clearly shown. The individual realizes an act is wrong, comprehends its natural outcome, yet commits it just the same, not seeming to evaluate it. He can never be depended upon in matters of morals, logic or ethics. There is a total lack of consideration for others, and an utter disregard for decency and honesty. All habitual criminals or delinquents must not be included in this group, nor must all psychopaths be called criminal, since this is not the case. Fully 50 per cent of them never come in conflict with the law, although they are always out of step with society. However, many habitual criminals are psychopaths, and therefore present additional responsibility. The psychopath is difficult for his egocentricity, riding roughshod over all, demanding everything, but giving nothing. He seeks sympathy only to take advantage of it, is unable to apply himself for long at a given task, is inefficient to a marked degree, never with a definite objective. He is boastful, substantiating his braggadocio with fabulous lies, and supporting his claims by law violation.

From study of many patients, it is felt that although the condition exists in all of them from the beginning, it manifests itself at different times. Some show from early childhood signs of abnormality, such as tantrums, outbursts of rage, sulkiness, stubbornness, or theft. In others the defect lies dormant until at some time in later life it is awakened, such as by a severe emotional shock. This calls to my mind, as an example, the most incorrigible psychopath with whom I have ever had to deal. His home life was ideal, conduct exemplary, school life excellent. He stood high in his studies and did well in athletics; never at any time did he give his parents the least concern. At the age of seventeen years, while in the tenth grade at school, his mother died. Within a month he was in the penitentiary in another state for stealing an automobile. During the next seven years he had five convictions and four hospital commitments, the last a criminal one, and is now confined at our Criminal Insane Department. He boasts of his accomplish-

ments, is fully conversant with the consequences of such acts, yet he has no feeling of remorse; states that he did these things for the kick he got out of it and thought that it was a great game trying to beat the law.

THE DYPSOMANIAC AND THE DRUG ADDICT

There are two other types of cases which give us all considerable concern, that I feel should be in the psychopathic group of latent awakening—the dypsomaniac and the drug addict. In looking back, how many of our alcoholics presented personalities within normal limits before the habit, but quickly became fullblown psychopaths after overindulgence. These changes are too complete and rapid to be charged to alcohol per se. Again, how very often do we hear from the drug addict: "A doctor started me on dope when I was sick, and now I have the habit." Regardless of the specific illness named, every doctor has treated numbers of cases like it, yet they all did not develop the habit. Why? Because a dormant psychopathic personality was not there to be aroused. These individuals, likewise, have not been on the drug long enough for it to bring about all of the observed changes.

CLASSIFICATION OF THE PSYCHOPATH

There have been numerous classifications of the psychopath as to type, possibly as many as there are authorities who have written of this condition. None, however, seem satisfactory, because they tend to classify as to the predominating symptom: for instance, nervous, anxious, or depressed. It seems to me that a classification which considers primarily group reaction would be better. This is in line with the advice of Partridge who divided them into: (1) the delinquent; (2) the inadequate and (3) the incompatible. This very nicely covers the whole field, permitting sub-grouping according to the specific form of dereliction. Obviously, then, only the first, the delinquent, presents a community problem. Here there are subgrouped all who come into conflict with the law: namely, the excitable, the liar, the swindler, the addict, the sexual, the kleptomaniac, and others. It is therefore this group that it is most necessary to index and supervise in order to safeguard society in general. Kraepelin foretold, and to date we find slight variation from his figures, that 50 per cent of male and 35 per cent of female psychopaths fell within this group.

It is unforunate that there are no available figures to show the incidence of constitutional psychopathy in the community, but, combining 70,000 first admissions to state hospitals, psychoses associated with this condition constitute 1.2 per cent of the total number. Assuming then that insanity occurs with the same relative frequency among the psychopaths as it does among the hypothetical normal, better than 1 per cent of the individuals in each community are so afflicted.

IDEAL CONTROL OF THE PSYCHOPATH

Admitting, then, that we are faced with a task so tremendous as almost to baffle description, we are asked what to do about it. As a starting point, I suggest that we follow the example set forth by the Federal Bureau of Identification in their drive to record the finger prints of all citizens of the country. Available to every court there should be a psychiatrist to examine each individual convicted of an offense, no matter how minor. If that person is found to be of a psychopathic personality, he should be so labeled and indexed, ever afterwards to be under the supervision of probation. Holt, in analyzing the statistics of examinations made by the Massachusetts Department of Mental Hygiene in the case of 5,000 persons committed to jail for thirty days or more, found that the diagnosis of psychopathic personality was made in 15.5 per cent of the number committed.

All of us who have had the opportunity to work with confined psychopaths in hospitals or prisons find that the vast majority of them make good patients or convicts, as the case may be. They lend themselves to routine and prove trustworthy, under disciplinary supervision. We all rebel when reading of a particularly brutal crime committed by a paroled convict, who labels himself a psychopath by the very nature of his

crime, but upon investigation of the records we find that he was an ideal prisoner—trustworthy, and entitled to release for good behavior. It is then reasonable to believe that continued supervision upon release from prison would prevent many second offenses.

Some countries have detention camps for their "undesirables." During the last few years there has been built a system of C. C. C. Camps, which have been of immeasurable benefit in the face of the severe crisis confronting our national youth. Why not a modified detention camp, functioning similarly to our C. C. C. Camps, for the employment of prison-released psychopaths? They could be paid and work under a military discipline. Recreational centers could be built, Army routine followed, with service rules and laws. The camp physician might well be a psychiatrist, who would aid immeasurably in supervision, advising and treatment of these unfortunate individuals. I cannot help but feel that such a protected life would be the ideal haven for selected psychopaths, enabling them to develop both mentally and physically, and giving them the satisfaction of feeling that at last they are able to lead worth-while lives, earning their way, yet, at the same time, not in conflict with society.

In closing I wish to recall an ever true dictum laid down by J. McKeen Cattell:

"Heredity determines what one can do,
Environment determines what one does do."

DISCUSSION

Dr. E. M. Robards (Jackson): I happened to be on that service myself for one and a half years and had sufficient contact with the particular group Dr. Pargen spoke of to get an idea of how they were handled in an institution.

In all the diseases we have heard of today, some method of treatment has been outlined. This is apparently one to which there is no particular approach for handling at the present, but I do believe that society has necessarily to be protected from this particular type of individual. Any man whose life is constructed upon destruction, who is a pathologic liar, who is totally unable to meet and adjust himself to ordinary social conditions, becomes a social menace.

Dr. Pargen gave the various types of psychopathic personalities. However, the one we have to treat most often, I am quite sure, is the type whose outstanding symptoms are total lack of judgment; I do not think they have the slightest idea of forming a judgment in any sense at all. They will do things with total disregard for the consequences of their act. Any court will be justified in handling these cases, and, in the instances where the line of demarcation between insanity and sanity is difficult to make, what are we to do with them? You will not send the insane man to the penitentiary. Therefore, I think that this appeal should be made to the profession in general, to become mental disease conscious, with particular reference to that type, so that when these individuals are encountered the doctor will advise the family accordingly, with the idea of developing them into useful citizens or at least protecting society against them.

Look in the newspapers any day and you will see some atrocious crime committed by these psychopaths. Some of you may remember about twenty years ago when the first "thrill" crime was committed in this country: Two boys killed another boy for the thrill of it. The discussion was, were they psychopaths or not. They were confined in prison up until a few months ago, when the same urge that caused both of them to commit this crime was responsible for one of these individuals attempting a similar attack on a fellow prisoner who killed him as a result. The constitutional imbalance that caused the first crime was responsible for the urge that prompted the second crime.

You do not know where, when, or how these people will commit some outrage, so it becomes our duty to arrive at some plan that will protect society from them.

Dr. C. S. Holbrook (New Orleans): I especially want to refer to the first part of the paper which I think was decidedly a classic. The description of these individuals was splendid. The second part was idealistic, for it will be a long time before we shall be able to do what Dr. Pargen suggests. He is correct, however, in that we should keep these individuals in an environment which is not too demanding, where they can be controlled. I wish this were possible, but at the present we just can not do it. And, besides, it would be difficult to say where the majority of people will be, whether on this side of the wall or on the other side.

Dr. Pargen referred to the delinquent as being the most troublesome type of psychopath. We, in a community like New Orleans, see also the inadequate personalities in great numbers. They are the fellows we have to carry on our backs, so far as the Community Chest is concerned. These people are not able to adjust themselves, have no stick-to-itness, and can not make a living for they do not want to work. Of course, they do not give much real trouble so far as the police are concerned, but they create a very definite community problem.

The constitutional psychopath and the consti-

tutional psychopathic inferior belong to the ill-defined, but nevertheless distinct, group of abnormal individuals; they represent a type of deficiency, and should be considered as those with physical defects such as microcephalus, cleft palate, congenital blindness, or deafness. They are also related to the intellectual deficiencies, that is, the feeble-minded group. The psychopaths, while physically and intellectually normal, are deficient morally and emotionally; they are born that way, and seldom can anything very definite be done to change this constitutional deficiency. They must be placed in environment where they can be controlled, but at the present time this type of mental abnormality can not be adequately dealt with.

Dr. R. McG. Carruth (New Roads): Just after my graduation, in 1880, I was placed in charge of 300 women in an insane asylum in the City of Baltimore. I afterwards became jail physician and continued so for a number of years. Later I was elected coroner and served in this capacity for many years. My early impression was that insanity was rapidly on the increase. I discussed this question with my confrères and some did not agree with me. Along in 1880, in the jail in Pointe Coupée Parish, an old jail and always crowded, there would be occasionally one insane negro. After a year or two, there would be one all the time and two or three occasionally. Time passed, and there would be two and three all the time and occasionally four and five. After twenty-five years, the same officers often served for a long time, I went one day to the chief deputy sheriff, who had charge of the jail, and asked him: "How many people have you in jail today?" He looked over the list and said that there were thirteen. "How many criminals?" I asked. It seemed to take his breath away when he answered: "Six criminals, more or less minor offenders, and seven insane." The trouble was that the state was not able to erect sufficient institutions.

In the paper I read before this body in 1919, I called attention to the great number of insane persons who were flooding our asylums. We were not able to house these people and at that time we had more or less filthy jails. It was considered by a great many people that the sooner these people died, the better for the community and their families. They did not keep them in jail. They turned them out as soon as they became better, and they were allowed to go home. Well, after about six months, when the patient was unable to adjust himself to a home life and to business, he soon relapsed and was returned to the institution.

Dr. Walter J. Otis (New Orleans): This paper should be given careful study by the doctors who return to their home towns. In every community there are these people who run afoul of the law. The psychopath is one because of the fact that he does not profit by experience, no matter how bitter the experience is.

The only way for treatment is, as Dr. Pargen says, to concentrate them in one locality under military discipline. During the World War we had no trouble with psychopaths in the Army, but we do have in the civilian population.

Dr. T. H. Pargen (In closing): I want to agree heartily with Dr. Holbrook that my suggestion was very idealistic. If we consider the situation, we might say that in 1790, when Pinel was going to erect asylums for the insane, possibly his confrères considered that scheme idealistic too.

MYASTHENIA GRAVIS

REPORT OF A CASE TREATED WITH ORAL PROSTIGMIN*

L. L. CAZENAVETTE, M. D.
NEW ORLEANS

The recent advances made in giving a more definite understanding of the etiology and the correct treatment of myasthenia gravis, and the favorable response obtained in a patient under prostigmin therapy, prompt me to call your attention to this disease.

HISTORY

Osler[1] defines myasthenia gravis as "a disease with fatigue symptoms in the muscular system, due to failure of innervation without definite changes in muscles or nerves." Thomas Willis,[2] in 1685, in his "Practice of Physick" was the first to record a case, now recognized as one of myasthenia gravis. Wilks,[3] in 1877, gave a detailed account of a case of "bulbar paralysis without anatomical changes," and Erb[4] in the following year, reported a peculiar form of bulbar disease in which the patient exhibited the now classic myasthenic syndrome. In 1893, the disease was established as a clinical entity by Goldflam[5] and was referred to as the "Erb-Goldflam symptom complex." Jolly,[6] in 1891, had proposed the term "myasthenia gravis pseudoparalytica," which is now in general use.

In the first decades of knowledge of the disease, most of the cases were reported by German and Austrian writers, later by

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British and French, and still a great deal later, by American investigators. Until recently, myasthenia gravis was regarded as of extremely infrequent occurrence, but the advent of improved forms of therapy has witnessed the reporting of so many cases that it can no longer be listed in the category of rare diseases.

COURSE OF THE DISEASE

At the onset, muscular weakness is first evidenced by ptosis of the upper eyelids, usually noticed at night, after fatigue, and disappearing after a night's rest. Progressively, there is weakness of the jaw muscles and difficulty in phonation, the speech becoming blurred and indistinct when the voice is used for long periods; there is dysphagia with regurgitation of food or liquids through the nose. Complete remission of these symptoms may intervene for periods varying from days to years, or the disease may progress without abatement to the point where there is such a degree of muscular weakness that walking or any muscular effort is impossible. The patient is bedridden, unable to eat, dehydrated, and death seems imminent. However, sometimes without treatment, the strength of the patient may gradually return, so that in a few weeks, he regains some of his former muscular power, although rarely, in untreated cases, is he sufficiently strong enough to work. In some cases, the disease progresses rapidly without remission and involvement of the respiratory muscles, with consequent attacks of dyspnea, may end in death.

Only within the last few years has the prognosis for patients with myasthenia gravis been anything but unfavorable. Of the 180 cases collected by McCarthy,[1] 72 were fatal. Goldstein[7] reported 26 deaths in 38 cases. Of the 60 cases collected by Campbell and Bramwell[8], 23 died. Boothby[7] reported that of the 65 patients treated at the Mayo Clinic, 13 died, which shows a lower mortality rate under modern therapy.

The diagnosis is easy in the cases with more marked symptoms. The muscular weakness and rapid fatigability, the ironed-out, blank expression of the face with ptosis of the eyelids and inability to smile or pucker up the lips to whistle, are all characteristic. But when the symptoms are not so pronounced and there is only slight muscular weakness the diagnosis is more difficult.

ETIOLOGY

The etiology of myasthenia gravis still remains clouded in a certain degree of obscurity, although researches conducted in the last decade have thrown some light upon the subject. The sexes seem to be equally affected. The disease appears in children, in middle life, and even after 60 years of age. Rothbart[8] reported four children, brothers of one family, who were afflicted with the disease, thus giving the impression that heredity may be a factor.

Until recently, the pathogenesis of this disease has been a matter of conjecture. The endocrines, the thymus, the adrenals, the pituitary, and the parathyroids have all been implicated at one time or another. Clinical experience has proved that syphilis plays no role in its etiology. Lately, Butt[10] found streptococci in the muscles of myasthenic patients at autopsy. Boothby[7] and his associates cooperated with Rosenow in attempting to determine whether or not the toxic factor is of microbic origin, in the belief that there are many phases of the disease which suggest that such may be the case. Other investigators believed that infectious diseases, such as typhoid fever, scarlatina, or influenza, produced a poison which acted upon the lower motor neurons and interfered with their activity without necessarily causing a discoverable change in structure.

Even the earliest investigators noted that upon autopsy, no lesions were found, nor was there any structural change in nerves or muscles which could account for the symptoms. The most consistent post-mortem findings are lymphorrhagic infiltrations of the skeletal muscles and sometimes of the myocardium, but these findings are not peculiar to myasthenia gravis.

Metabolic disturbances were given consideration as probable etiologic factors. Since a mild creatinuria was observed in

many cases, it was suggested that a diminished metabolism of creatine and creatinine by the muscles might be a causative agent. Cooke and Passmore[11] concluded that the biochemical lesion appeared to be not an inability to form creatine from its precursors, but an inability to metabolize creatine properly and especially to effect the normal conversion to creatinine. Wade[12], who found the excretion of these substances within normal limits, was of the opinion that the abnormality might lie in the utilization of the formed substances rather than of the formation of creatine and creatinine from their precursors. Nevin[13] also reported that he could find no fault in the chemical mechanism of muscle contractions; the metabolic changes were secondary and could not be considered of etiologic origin.

The present view of the etiology of myasthenia gravis had its inception in the work of Dale[14] and Feldberg[15], who demonstrated the role of acetylcholine as the chemical transmitter of nervous impulses at the myoneural junction. Then, a year later (1935), Pritchard[16] reported that if the ulnar nerve of a patient with myasthenia gravis was stimulated electrically, a characteristic myographic record would be obtained which differed strikingly from that of normal persons, and from that of any cases of muscular weakness other than that of myasthenia, and offered confirmatory evidence that the weakness in this condition is due to a disturbance of the myoneural junction.

The working hypothesis upon which the treatment of this disease is now based is that the muscular weakness is due to faulty transmission of nerve impulses to the muscles at the myoneural junction, either because of the production of insufficient amount of acetylcholine, or because of increased destruction of acetylcholine at the myoneural junction by choline esterase. Upon the assumption of the correctness of this theory of acetylcholine destruction, the present day treatment of myasthenia gravis rests, and the results obtained with prostigmin offer confirmatory evidence of its soundness.

TREATMENT

Until the last few years, the treatment of myasthenia gravis was conducted upon an empirical basis. Thyroid extract, suprarenal gland, pituitary extract, antuitrin-S, have been tried with little or no effect. X-ray of the thymus was found by some investigators to be beneficial and by others to be of no avail. Strychnine, mercury and the iodides were given with negative results. In the belief that the administration of amino acids might increase the creatine content of the muscles and thereby heighten their contractile powers, glycine therapy has been used with varying degrees of success. Ephedrine hydrochloride proved of great value to Harriet Edgeworth[17], who had been for eleven years a bedridden victim of myasthenia gravis. Others have had favorable results with this drug either alone or in combination with glycine.

In June 1934, Mary B. Walker[18] reported that because the abnormal fatigability in myasthenia gravis had been thought to be due to curare-like poisoning of the motor nerve endings or of the myoneural junctions in the affected muscles, she had tried the effect of physostigmine salicylate in hypodermic injections (1/60 to 1/45 gr.) and that it did produce a strong though temporary improvement. Her success with this drug led her to try an analogous drug, prostigmin[19], which had been synthesized by Aeschlimann and Reinert[20] in 1931. She found that prostigmin (in hypodermic injections of 2.5 mgm. two to five daily) relieved the symptoms, had a less depressing effect upon the heart, was less productive of nausea and vomiting, and was probably safer in large doses than physostigmine. Atropine given simultaneously prevented colic and nausea without affecting the action of prostigmin.

The results obtained by Walker were confirmed by Pritchard[16], Laurent[21], and others.[22, 23] Potassium chloride was also used as an adjunct to prostigmin with varied success[24]. Reports up to this point

indicated that the value of hypodermic injections of prostigmin in the treatment of myasthenia gravis was acknowledged and that this mode of therapy was considered superior to any yet tried. But the experiments continually being made as to the beneficial efforts of various adjuvants showed that there were some difficulties yet to be overcome, i.e., the gastrointestinal and cardio-respiratory symptoms which some observers found to be attendant upon the hypodermic administration of prostigmin, and the problem of treating patients over long periods without hospitalization or frequent visits to the office for injections.

ORAL ADMINISTRATION OF PROSTIGMIN

In 1935, Everts[25] was the first to report the treatment of two patients with myasthenia gravis by the oral administration of prostigmin, which he declared was safe, did not produce gastric or intestinal disturbances, could be continued indefinitely, relieved the patients of symptoms, and restored them to health. His observations were confirmed by Laurent and Walker[26], Mitchell[27], and Smith[28]. Viets, Mitchell and Schwab[29], reported that through the oral administration of the drug, by carefully spacing the doses, patients could be maintained upon a degree of muscular efficiency better than with any other form of treatment and without ill effects. Harvey and Whitehill[30] concurred in this opinion.

PROSTIGMIN AND QUININE IN THE DIAGNOSIS OF MYASTHENIA GRAVIS

Viets and Schwab[31], as well as Harvey and Whitehill[30] called attention to the value of prostigmin as a means of aiding in the differential diagnosis between myasthenia gravis and other myopathies and neurologic disorders. They found that prostigmin produced immediate improvement in those patients with myasthenia gravis, whereas those with other disorders were not so benefitted. Kennedy and Wolf[32, 33] offered evidence which marked a still further advance in prostigmin therapy. They found that quinine improved patients with congenital and atrophic myotonia whereas it aggravated the symptoms of myasthenic patients. Upon giving prostigmin to these doubtful patients after the administration of quinine, the beneficial effect on the myasthenic patients was made more apparent, whereas the ill effect on those with myotonia was made manifest by aggravation of symptoms. Harvey and Whitehill[34] confirmed these findings and concluded that in contrast with the equivocal effects produced by prostigmin before quinine, the results elicited by a single dose of prostigmin after the administration of quinine were of conclusive diagnostic importance.

CASE REPORT

In the fall of 1923, Mr. X., white, aged 49, merchant, consulted me because of an impairment of speech, double vision, weakness in the act of mastication, and difficulty in keeping his eyes open. He said that these complaints had been coming on for several days, if not weeks, and that they were always more marked in the latter part of the day. He had noticed no weakness in the limbs or in other parts of the body.

Neurologic examination was negative for any organic manifestations. The laboratory tests were negative for lues; nevertheless, although myasthenia gravis was suspected, he was given a mild course of antiluetic treatment and also mercury, iodides, and strychnine. His symptoms gradually subsided and in the course of a few months he was apparently free of all symptoms of his malady.

In 1926, he returned with the same complaints. He stated that he had not been completely free of weakness and fatigue about the eyes and face since his first episode, but that the fatigue and weakness were getting more pronounced and were occurring in the earlier part of the day. The weakness in speech had reached such a point that it had become necessary for him to dictate to his secretary in the early business hours of the day, otherwise the weakness would come on and prevent him from speaking. To overcome some of the difficulty in speech, he would support his lower jaw with one hand. He also noticed that supporting the jaw in this manner helped him to keep his eyes open.

After another neurologic examination had proved negative for any organic cause, the definite diagnosis of myasthenia gravis was made. At this time, he presented bilateral ptosis, diplopia, an ironed-out face, dropping of the chin, all symptoms which appeared after exertion of any sort and diminished after a period of rest. He was told the nature of his condition and the necessity for rest and avoidance of any exertion, and was given strychnine sulphate tablets, gr. 1/30, to be taken four times a day.

Mr. X got along fairly well for a long period, but in 1935, the myasthenic syndrome again came to the fore and he consulted me once more. He

then stated that though he had not felt completely well since the attack of 1926, and had had more weakness some days than others, he had only noticed an increased difficulty during the past few weeks.

Examination revealed that the symptoms were more pronounced than during any previous attacks, so much so that he was again wont to hold his jaw with one hand in the act of talking and masticating, which acts had become almost impossible without such assistance. He also experienced great difficulty in swallowing, especially solid food. Prolonged rest and strychnine gave some relief but there was little response to any medication, which included the iodides.

Mr. X then decided to take a vacation and to go to Hot Springs, Arkansas, for rest and treatment. He consulted Dr. William R. Smith of that city, who also recognized his condition as myasthenia gravis, and in November of that year gave him injections of antuitrin-S. After receiving some twenty injections, daily at first and then every other day, Mr. X returned to me for continuance of the treatment. He received injections of antuitrin-S, in doses of 1 c.c. hypodermically, three times a week for 35 injections. The myasthenic symptoms would appear to subside for a time and then again to reappear, but at no time was there complete remission of symptoms. He also received at that time glycine medication in the form of glycocoll elixir, as well as ephedrine hydrochloride, for several weeks, all without material benefit.

In October 1936, he again showed a more severe recurrence of the malady. He was then given prostigmin, 1 c.c. by needle, in the early morning. The effect of this drug was immediate and lasted for several hours. It permitted him to speak more easily, to masticate and swallow with more ease, and helped him to keep his eyes open. He was also given at the same time atropine sulphate, 1/150 gr. t.i.d., for relief of intestinal symptoms when necessary.

The difficulty of coming for treatment caused me to change the method of administration and to give prostigmin by mouth, as advised by Everts. Mr. X has now been taking prostigmin tablets by mouth since December 1936, and has been getting along very well under such treatment. He has found at present that taking the tablets, one at 6 a. m., one at 8:15 a. m., one at 10 a. m., one at 11:30 a. m., one at 2:15 p. m., one at 4:15 p. m., and one at 7:30 p. m., gives him better satisfaction. Prostigmin is supplied in ampoules of 1 c.c. for hypodermic use and in tablets of 15 mgm. for oral use. The patient is now taking a minimum of eight tablets of 15 mgm. a day without ill effects. It can certainly be said that this form of medication has been more helpful to this patient than any other treatment given, including ephedrine and glycocoll elixir.

DISCUSSION

A careful survey of the literature on the treatment of this disease, which up to a few years ago was considered unapproachable from the therapeutic point of view, and the results obtained in one case, lead me to confirm previous observations that there is in prostigmin a remedy which is of great assistance in the management of myasthenia gravis. I believe that the ease of its administration by the oral method places it far beyond any other medication of choice in this heretofore intractable disease.

Another point of importance is the use of prostigmin as a means of diagnosis between myasthenia gravis and other conditions causing weakness and fatigability. It is definitely accepted that if a patient with these symptoms, especially after exertion, is not relieved immediately by the administration of prostigmin, that patient does not suffer from myasthenia gravis.

The subcutaneous administration of prostigmin (one ampoule) as put up by Roche is to be reserved for purposes of diagnosis and for the relief of the most severe symptoms, while the drug in the tablet form (15 mgm.) is to be used orally and so regulated as to time and dosage as to satisfy the condition of the individual patient.

SUMMARY

A digest of the recent literature on myasthenia gravis, its probable cause, the method of diagnosis, and its treatment with prostigmin is here given.

A report of one case of myasthenia gravis of fifteen years' duration, and the consistently favorable results obtained by the use of prostigmin during the last seventeen months, is submitted.

CONCLUSIONS

Myasthenia gravis is no longer to be considered as a condition for which no help can be offered to its victim.

It is suggested that prostigmin be administered for diagnostic purposes to those patients who complain of undue fatigability after exertion, as these patients may prove to be affected with myasthenia gravis in a mild form.

Prostigmin by parenteral, or subcutaneous, or preferably by oral administration, is the drug par excellence for the alleviation of the symptoms of myasthenia gravis. It may be continuously used for an indefinite period of time without diminution of its effects and without serious untoward results.

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DISCUSSION

Dr. L. A. Golden (New Orleans): Dr. Cazenavette has ably presented most of the facts that are known about this interesting disorder and has left but little for the discussor to add.

Careful studies of myasthenia gravis reveal it to be neither a muscular atrophy nor a muscular dystrophy. Its pathology seems to have found a resting place for the present at the "myoneural junction." Foster Kennedy and Alexander Wolf, in their recent clinical work, have found that when patients with myotonia were treated with prostigmin, it aggravated their condition; whereas, patients thus treated for myasthenia gravis were definitely relieved. Quinine, if given to patients with myotonia, results in improvement, whereas in myasthenia gravis it aggravates the disorder. There seems to be an antagonistic action between the two substances quinine and prostigmin. It was thought that myasthenia gravis might be related to disturbances in the metabolism of muscle. In studies of creatine and creatinine undertaken so far, there has been no such evidence of creatine or creatinine disturbance in myasthenia gravis.

In dealing with clinical manifestations of the disorder, it is quite obvious that most textbook descriptions are not especially true to life. I was allowed the privilege of studying 14 cases at the National Hospital in London. In stage one, the ocular symptoms are prominent. As the condition proceeds, the trunk and upper extremities become affected.

A practical point is that the ophthalmologist will see the patient with myasthenia gravis long before the medical man or the neurologist. If the ophthalmologist is on the lookout, the neurologist should see myasthenia gravis in its early stages, because eye signs are particularly present and numerous. Seventy-eight per cent have eye symptoms, and often a case may have eye signs which disappear and eighteen years later, as in one case I saw, they may appear again in connection with other signs of myasthenia gravis.

I think it is a hopeful sign that we have finally found a medicine that seems to help us in treating

myasthenia. Unfortunately, there is still a strong conviction that the final outcome is the same whether a case is treated with prostigmin or not. At least, it is of help while they are suffering from extreme weakness.

Another practical clinical point is to warn the myasthenic patient against emotional outbursts which may cause sudden paralysis of respiratory muscles and sudden death. While previously the cause of sudden death was thought to be respiratory failure, that does not seem always to be the case. James Collier reported two patients who suddenly died while chatting quietly. I hope that further studies of myasthenia gravis and its treatment may lead to further knowledge of practical import in prolonging the life of such patients.

Dr. L. J. Dubos (New Orleans): I would like to ask Dr. Cazenavette if he has to increase the dosage of prostigmin when continuing its use in chronic cases. I had occasion to treat a case of myasthenia gravis about a year ago; the effect of this drug was spectacular in the beginning, but this good result was only temporary. After two or three weeks, I found out that I had greatly to increase the dosage to produce effects; and later, the prostigmin proved of practically no value.

Dr. A. A. Herold (Shreveport): I was under the impression that prostigmin and atropine are physiologically antagonistic in their action and noticed that Dr. Cazenavette mentioned they were used together. I wonder what effect atropine has on these patients?

Dr. L. L. Cazenavette (In closing): The time set for the reading of my paper is such that it was impossible for me to include all important points on this very important subject.

Many of us present here today will recall how utterly helpless we were in the past, and even to a very few years ago, when confronted with a patient afflicted with myasthenia gravis, there was then nothing we could do that would, in any way, be of benefit to these unfortunates. The discovery of the beneficial action on the symptoms of this disease by the use of prostigmin, has created a new era in the management of this intractable disease.

Not only are we able, at this time, by the proper and continuous use of prostigmin to render the patient with myasthenia gravis more comfortable, but in many instances it has been possible for the patient to return to his former occupation. It is to be remembered that these patients are frequently affected with an inability to swallow and their very existence depends upon the rapid and beneficial action of a drug which will permit the immediate functioning of the muscles of deglutition. The hypodermic or intramuscular administration of one ampoule of 1-2000 solution of prostigmin methylsulphate will at once relieve the situation. Again it is to be remembered that prostigmin is of use as a diagnostic agent. It has been proved that this drug will relieve the weakness in cases of myasthenia gravis only. Cases of muscular weakness or paralysis from causes other than myasthenia gravis, including the myopathies, do not respond beneficially under its use. For diagnostic purposes one ampoule of the 1-2000 solution of prostigmin methylsulphate may be administered subcutaneously or intramuscularly. The response in myasthenic cases is rapid and at once settles the diagnosis.

The patient whose case is here reported has been taking the prostigmin tablets per oram for over a year. He uses from ten to twelve tablets a day, sometimes more. The number of tablets depends greatly on his activities of the day. He has always found relief and has not had any untoward symptoms.

I understand that even though a greater number of tablets is taken orally per day, it is possible for the patient to diminish considerably the quantity of tablets per day and get along well with this smaller quantity.

THE DIETETIC AND INSULIN MANAGEMENT OF THE JUVENILE DIABETIC*

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INTRODUCTION

It has been said that the life of man is a short blooming and a long withering. In order to make this prophecy come true, then the blooming age of diabetic children must be very carefully supervised in order to insure them any degree of immunity from an early death. At the present time, this is much more easily accomplished than in the past because of the advancements made in new insulin therapy, in dietetic management, and in the educational routine prescribed.

The management of diabetes mellitus in childhood takes into consideration, growth, education, and factors that are more dominating than in the adult, such as severity, instability and progression. These problems make an absolutely strict routine imperative. Any relief from this burden carried by diabetic children and their parents would certainly be welcome, provided, of course, that the diabetes would remain under satisfactory control. It has been said there was no improvement on insulin,

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but there can be and there is an improvement in insulin.

INSULIN

During the past two years, there have been a great number of reports on protamine insulin and modifications thereof. The first reports of Hagedorn and his co-workers[1] from Copenhagen, and of Root[2] and Sprague[3] and Freund[4] and their co-workers in this country gave us the observation of the slower rate of absorption of protamine insulin, with its slower and more prolonged action in reducing the blood sugar, which lessened the fluctuations of the blood sugar level, producing fewer and milder hypoglycemic reactions with a reduction in the number of doses given per day. The new protamine zinc insulin seems to replace the old without difficulty. The lengthened hours of diabetic control should have an effect upon the prevention of future degenerative complications.

The ideal of attainment is not only to produce a normal blood sugar throughout the entire twenty-four hours without either insulin shock or glycosuria, but also to produce normal development and growth, and a living happy existence, brought about by the proper management of their diabetes.

Protamine zinc insulin is indicated particularly in juvenile diabetics, in insulin sensitive patients, in cases requiring three or four injections of unmodified insulin a day, and in those who cannot be satisfactorily controlled with unmodified insulin.

The time of administration is best usually from an hour to two hours before breakfast if protamine zinc insulin alone is used. If unmodified insulin is also necessary, the time must be within a half hour before breakfast. The unmodified insulin here takes care of breakfast before the protamine insulin begins to be absorbed, and the latter then is effective enough by noon to care for the lunch and evening meals. Due to the continued absorption of the protamine, a low all night blood sugar is present and very early morning reactions frequently occur.

Each patient requires individualization of dosage as determined by frequent fractional urine tests and blood sugars. The insulin required to keep the urine practically sugar free and the blood sugar normal varies with age, weight, activity, stability of the disease, intercurrent complications and progression of the disease. It is better to regulate the dose of insulin to the food taken rather than vice versa. The "W" shaped blood sugar curve of the juvenile diabetic, with its three high points and two low ones, levels itself out approximating the curve of the normal.

A PROTAMINE ZINC INSULIN PROGRAM FOR DIFFERENT PATIENT GROUPS

1. New patients with the insulin requirement unknown are best treated in a hospital for a week. In desugarizing a new patient the initial dose of protamine zinc insulin varies, (see table 1) from 10 units at five years of age, to 20 units from five to 10 years of age and 20 to 30 units over 10 years of age. This dosage may be increased every three or four days up to 40 or 50 units, but when 40 or 50 units are necessary then it is often advisable to give less protamine zinc insulin and to give a supplementary dose of unmodified insulin.

TABLE 1

Protamine Zinc Insulin Program in a New Patient with the Insulin Requirement Unknown

Age	Protamine zinc insulin	Diet in calories	Ratio of C:P:F
1-5	10 units	1 yr.-1000 5 yr.-1400	C 2. 0 P 0. 9 to 1.0 F 1. 0
5-10	20 units	1600-1800	C 2. 0 to 2.5 P 0. 9 F 1. 0
10-15	20-30 units	1800-2000	C 2. 0 to 2.5 P 0. 9 F 1. 0

One is able to judge whether protamine zinc insulin alone is necessary, or whether accessory doses of unmodified insulin are needed by the blood sugar. Usually the fasting morning blood sugar is normal with protamine zinc insulin and the loss of control shows up in the 11:30 a. m. or in the 3:30 p. m. blood sugar, and this indicates the need for the morning accessory dose of unmodified insulin. The two doses of insulin are given separately but at the same time, the unmodified insulin being given first, and then at a different site, the prota-

mine zinc insulin. The unmodified insulin can be frequently omitted after a few weeks.

Some children do badly when the treatment is changed from the unmodified to the modified insulin, because the blood sugar does not get under control for several days and this change is a gradual one, and sufficient time must be allowed for stabilization with protamine zinc insulin. Any changes should be made gradually and infrequently.

TABLE 2

Method of Changing from Unmodified Insulin to Protamine Zinc Insulin in Mild Diabetes

Date	A. M.		Noon	P. M.	Urine test before meals		
1937	Unmodified insulin	Prot. zinc insulin	Unmodified insulin	Unmodified insulin	A. M.	Noon	P. M.
6/1	16		0	0	0	0	0
7/1	0	14	0	0	0	+	+
7/2	0	14	0	0	+	tr	tr
7/3	0	14	0	0	tr	0	0
7/4	0	14	0	0	0	0	0
7/15	0	14	0	0	0	0	0
7/30	0	14	0	0	0	0	0
8/15	0	13	0	0	0	0	0
8/30	0	12	0	0	tr	0	0
9/15	0	13	0	0	0	0	0

It is usually easy enough to manage a case in the hospital but the real test comes when the child is sent home where he should lead a normal life of activity. The patient and physician alike must not become discouraged just because diabetic control cannot be brought about in as short a space of time as with unmodified insulin.

It is fairly easy to obtain a normal fasting morning blood sugar with the new insulin, but it is often difficult to do so in the daytime without temporarily at least giving a supplementary dose of unmodified insulin, or without spreading out the diet. When the diabetes is controlled, an improvement in this group or in the groups following may be anticipated either to an increase in tolerance, or from a cumulative effect of the protamine zinc insulin, and small dosage reductions may be made every few days while no glycosuria nor hyperglycemia occurs. The optimum dosage will be gradually attained, and this will prove valuable in preventing reactions.

2. In patient needing only one dose of unmodified insulin, under 30 units daily, (see table 2) substitution of protamine zinc insulin in the same dosage or slightly less will suffice. Whereas with the single dose of unmodified insulin the only time reactions were feared was before lunch, now the reactions will occur most likely before breakfast.

TABLE 3

Method of Changing from Unmodified Insulin to Protamine Zinc Insulin in Moderate Diabetes

Date	A. M.		Noon	P. M.	Urine test before meals		
1937	Unmodified insulin	Prot. zinc insulin	Unmodified insulin	Unmodified insulin	A. M.	Noon	P. M.
5/1-6/23	18		0	11	0	0	0
6/24	4	20	0	0	0	+	+
6/25	2	22	0	0	+	+	+
6/26	0	24	0	0	tr	0	0
6/27	0	24	0	0	0	0	0
6/28	0	24	0	0	0	0	0
6/29	0	24	0	0	0	0	0
6/30	0	24	0	0	0	0	0

3. Patients needing multiple doses of unmodified insulin. In a moderate diabetes where only an a. m. and p. m. dose are necessary using a total of only about 30 units, a morning dose of two-thirds of the day's total of protamine zinc insulin and about 30 per cent of the day's total of unmodified insulin, are given a half hour before breakfast. A gradual change to one dose of protamine zinc insulin is accom-

TABLE 4

Method of Changing from Unmodified Insulin to Protamine Zinc Insulin in Moderate Diabetes

Date	A. M.		Noon	P. M.	Urine test before meals		
1937	Unmodified insulin	Prot. zinc insulin	Unmodified insulin	Unmodified insulin	A. M.	Noon	P. M.
8/1-8/31	22	0	0	12	0	0	0
9/1	20	4	0	10	0	0	+
9/2	18	8	0	8	+	0	+
9/3	16	12	0	6	tr	tr	tr
9/4	14	16	0	4	tr	0	0
9/5	12	20	0	2	0	0	0
9/6	10	22	0	0	tr	0	0
9/7	6	24	0	0	tr	0	0
9/8	4	25	0	0	0	tr	0
9/9	2	27	0	0	0	0	0
9/10	0	29	0	0	0	0	0
9/11	0	29	0	0	0	tr	0
9/12	0	29	0	0	0	0	0
9/13	0	29	0	0	0	0	0
9/14	0	29	0	0	0	0	0
9/20	0	29	0	0	0	0	0
9/30	0	28	0	0	0	0	0
10/5	0	28	0	0	0	tr	0
10/15	0	28	0	0	0	0	0

plished by reducing each day the unmodified insulin two units and increasing the other two units (see table 3). A rough estimate of 10 per cent to 20 per cent reduction in insulin requirements can be made. In Table 4 is shown another and often better method for changing from unmodified to protamine zinc insulin. Here the unmodified insulin is reduced two units a day from both the a. m. and p. m. doses, and these four units are replaced by protamine zinc insulin. There is often less tendency here to have an upset in the diabetes. Table 5 shows the method of changing from unmodified insulin to protamine zinc insulin in a very severe diabetic requiring four doses of the former a day. In these patients the noon and midnight doses are stopped at once, and approximately four-fifths of the day's total is given. Of this, about one-third is given as protamine zinc insulin and two-thirds as unmodified insulin, the latter being equally divided between the a. m. and the p. m. doses. Each day each of these doses is decreased two units and the morning dose of protamine zinc insulin increased this four units, until it can be roughly estimated that three-fifths of the former total dose may be given as protamine zinc insulin, and one-fifth of the total as unmodified insulin before breakfast, omitting the evening dose.

Discontinuance of the unmodified insulin is not advisable when over 40 to 50 units of insulin are used daily, because of the danger of early morning reactions. Hypoglycemic reactions before lunch indicate a reduction of the unmodified insulin whereas an early morning reaction means a reduction in the protamine zinc insulin.

Occasionally it is necessary to give, in addition to the morning dose of protamine zinc insulin with a supplementary dose of unmodified insulin, a night dose of protamine zinc insulin. In these cases it is advisable to change to Hagedorn's schedule of giving an evening dose of protamine zinc insulin and a morning dose of unmodified insulin with two-fifths of the day's carbohydrates at breakfast, two-fifths at lunch and one-fifth at supper.

TABLE 5

Method of Changing from Unmodified to Protamine Zinc Insulin in Very Severe Diabetes

Date	A. M. Unmodified insulin	A. M. Prot. zinc insulin	Noon Unmodified insulin	P. M. Unmodified insulin	Midnight Unmodified insulin	Urine test before meals			
1937						A. M.	Noon	A. M.	Midnight
8/1	28		12	20	10	0-+	0-+	0-+	0
8/2	22	22	0	18	0	0	0	+	tr
8/3	20	26	0	16	0	+	tr	tr	0
8/4	18	30	0	14	0	+	tr	+	0
8/5	16	34	0	12	0	tr	0	tr	0
8/6	14	38	0	10	0	tr	0	0	0
8/7	12	42	8	0	0	+	0	0	0
8/8	10	46	0	6	0	tr	0	0	0
8/9	10	48	0	4	0	0	0	0	0
8/10	10	48	0	2	0	0	0	0	0
8/11	10	48	0	0	0	0	0	0	0
8/12	10	48	0	0	0	0	tr	tr	0
8/13	10	48	0	0	0	0	0	0	0
8/14	10	48	0	0	0	tr	0	0	0
8/15	10	48	0	0	0	0	0	0	tr
8/20	10	48	0	0	0	0	tr	0	0
8/25	10	48	0	0	0	0	+	0	0
8/30	12	48	0	0	0	0	0	0	0
9/7	12	48	0	0	0	0	0	tr	0
9/14	12	48	0	0	0	0	0	0	0

DIET

There are two postulates I would like to make: A normal diet cannot be given without insulin, and a diabetic child cannot be expected to adhere to an inadequate diet. The diet is still the most important factor in treatment even though insulin is pushing it for first place.

Various methods may be used in prescribing the diabetic diet.

1. *The qualitative diet*: Very rarely is there found juvenile diabetes so mild that if the patient will eliminate certain foods from the diet, this alone will suffice in

controlling the glycosuria, the patient here secreting enough insulin to care for this amount of carbohydrate.

2. *The quantitative diet*: It may be prescribed in three ways: (1) Occasionally it is possible to designate the amount of food to be used as measured by household measurements as one-half cup, or a portion of food so many inches in measurements. This method is never very satisfactory and is used only when it is not practical to use the weighed diet. (2) There are two weighed diets, the fixed weighed diet, and the figured weighed diet. In the fixed weighed diet, the patient weighs out the food, but the diet has been figured and prepared for the patient by the doctor. This diet permits only limited substitutions and changes, and rapidly becomes tiresome and encourages the temptation to cheat. The figured weighed diet differs only in that it is figured by the patient himself, or the patient's mother and this is the most satisfactory method for handling the diabetic diet. The patient, or the one in charge of the diet, is taught to take a prescription of so many grams of carbohydrate, protein, and fat and so select foods from the diet tables that the foods in the quantities so selected equals the diet prescription. After a few months the one preparing the diet has become so experienced that he can figure any combination of foods desired, and through practice has memorized many of the common foods and can estimate quantities of food so that he can approximate the diet very accurately, without the use all of the time of the food tables or scales. It is thus easier to use foods in season and the variability and palatability of the diet makes it so much easier to follow strictly the diet prescription. The free diet of Lichtenstein[6] is not advocated. Eleven factors are involved in the construction of the optimal diet for diabetic children: carbohydrate, protein, fat, calories, vitamin, mineral, bulk, water, the ketogenic-antiketogenic ratio, the growth and developmental response of the child, and the child's satisfaction with the diet. It is with the first three we are chiefly concerned, but it is essential to good health that the other factors be given consideration.

In general, the three meals can be about equally divided, and then food shifted from one to the other as desired in order to balance the blood sugar and to keep the urine sugar free. Part of the meals may be given mid-morning, mid-afternoon, and at bedtime and this is especially valuable in children as it produces a more even distribution of the food and results in a more even blood sugar; there is often less tendency to have reactions, and it often eliminates the need of supplementary insulin in some cases.

All variations of diets have been tried and the most successful is the high carbohydrate, low fat diet. The advantages of this diet are: (1) There is a better metabolic balance with less tendency to go from a hypoglycemia to a hyperglycemia. (2) There is an actual lowering of the insulin requirements in many patients. (3) There is less tendency to develop premature arteriosclerosis. (4) The patients adhere to their diets more closely because of its greater palatability and its approximation to the average diet. This produces an important psychologic factor in children. (5) There is an increase in carbohydrate tolerance. (6) There is an increased sense of well being, the weight, strength and energy are at more of an optimum, and the patient has more of an optimistic outlook on life.

The ratio of carbohydrate, protein, and fat is 2 to 2.5 of carbohydrates to 0.9 of protein, to 1.0 of fat. The protein varies with age, at one year about four grams of protein are required per kilogram body weight, and at age four about three grams, and at age eight about two grams.

The caloric requirement cannot be arbitrarily set as it must allow for basal metabolism, normal activity and growth. It has to be increased as necessary to produce normal growth. Undernutrition is not advocated but there are reasons for avoiding overweight.

The following factors warrant the continued use of the weighed diet: Accuracy of management, control of the weight, a well balanced and adequate diet, distribu-

tion of the diet, and the well educated, well managed diabetic rarely dies of the disease.

COMMENT

All diabetic children vary in their response to diabetic management. Some are "brittle" or "insulin sensitive," in that insulin produces a marked fluctuation of the blood sugar. Others are "insulin resistant," in that insulin has but little effect on the blood sugar level. This same phenomenon holds true with protamine insulin and protamine zinc insulin. The juvenile diabetic if properly managed lives a normal life. He does not object to the insulin injections, nor does he object to the diabetic routine and discipline of the type of existence to which he must conform.

The ideal is to keep them practically sugar free, normal in height and weight for their age, a blood cholesterol below 230 mg., a normal blood sugar, and a happy existence. Keeping them practically sugar free does not mean 100 per cent sugar free as judged by the 24 hour quantitative urine specimen, as the accumulative action of protamine insulin will thus cause severe reactions. It is best to set your standard at 90 to 95 instead of 100 per cent sugar free. This depends not only upon intelligent treatment by the doctor but on the full cooperation and sympathy of the parents, and upon the integrity and full cooperation of the child. And just because one plan of management gives excellent results in a group of children does not necessarily mean that other manipulation of the diet may not be equally as satisfactory when all factors are considered. Remember that the well educated diabetic rarely dies of the disease.

SUMMARY

The following factors warrant the continued use of the weighed diet: Accuracy of management, control of the weight, a well balanced and adequate diet, distribution of the diet, and the well educated, well managed diabetic seldom dies of the disease. The new protamine zinc insulin seems to replace the unmodified insulin without difficulty. It is particularly indicated in juvenile diabetics, in insulin sensitive patients, in those requiring three or four injections of unmodified insulin daily, and in those who cannot be satisfactorily controlled with unmodified insulin.

The ideal of attainment is not only to produce a normal blood sugar throughout the twenty-four hours without either insulin shock or glycosuria, but also to produce normal development and growth, and a living happy existence brought about by the proper management of their diabetes.

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DISCUSSION

Dr. A. A. Herold (Shreveport): There is only one point upon which I wish to take issue with Dr. Herron, and that is it has been my experience that whereas one dose of protamine insulin will take care of the adult diabetic successfully, I have never seen a child who could be controlled with one dose of protamine insulin. It is true the child is nothing but a small adult, but the child is subject to violent fluctuations in blood sugar levels and attempting to regulate with one dose is impossible. I have had patients in my own practice who had to go back to regular insulin, or if they persisted in protamine, they had to take one dose of unmodified insulin. In order to keep sugar from the urine for 24 hours, you have to give such a quantity, they are pretty sure to get protamine zinc insulin reaction next morning, and we know these are harder to control than reactions from plain insulin. It has been shown by Soskin in Chicago that they are damaging to the liver, and has also been shown that prolonged hypogly-

cemic reactions are damaging to the brain. Therefore, it is better if the patient is so regulated on a moderate level that there is no spill over of sugar. To do that successfully with these small bodies, it is necessary after giving protamine insulin to give small doses of plain insulin with it.

I have seen some very successful results with protamine zinc insulin in adults, but as for children, my results, and the results of others, have not been so good. I have at home a girl of 11 years, put on protamine zinc insulin by Joslin in Boston, who still cannot be controlled with it alone, because if she gets a full dose of protamine in the morning, she has a violent reaction about 22 hours after the administration. So the mother has to cut down the protamine and give unmodified insulin.

With that exception, I think Dr. Herron is right, and I congratulate him upon his paper.

Dr. Allan Eustis (New Orleans): In these young people, I find that exercise plays an important part in their management. I have a boy of about 10 years of age. When he drills, he is apt to have insulin shock; if he does not drill or exercise, he is apt to show sugar in the urine.

It is very difficult to control, that is why children are so much harder to regulate.

Dr. Charles J. Bloom (New Orleans): Many of us are prone to believe that juvenile diabetics are rare, but after a perusal of the statistics of Charity Hospital and of Touro Infirmary we find that at Touro, from July, 1933 through December, 1936, there were 388 adult cases and 21 children; the incidence of children was 5.4 per cent. In the Charity Hospital, the incidence of children was 3.7 per cent. At Charity Hospital, from July 1, 1924 to June 30, 1936, the incidence of diabetic patients was 9.5 per cent.

If one thinks for a moment of the pre-Banting period relative to the death rate of juvenile diabetes, when it was practically 100 per cent, and life expectancy of a 10 year old child was less than two years, and compares it with present day statistics, we must now realize that (the administration of insulin dates back to approximately 1922), the life expectancy of a 10 year old diabetic child has been increased to 32 years.

If we briefly recapitulate the statistics of White on 750 diabetic children: Of 61 children living in the Naunyn period (1898-1914) 2 per cent living today; in the Allen period (1914-1922) 170 children, 28 per cent of them living today; in the Banting period of insulin and protamine, 1922 to 1931, 519 patients, 93 per cent of whom are living.

Dr. Paul H. Herron (In closing): I realize that in juvenile diabetics, it is hard to restrict activity so that each day we will know how much exercise the child is going to have. Therefore, some days there will be violent reactions and other days hypoglycemic shock on the same dose of insulin, even if they have no intercurrent infection, which is something we cannot regulate.

Dr. Bloom gave some good statistics when he quoted the table about the rate of advance made in mortality. Just recently, I had a general practitioner say that there was no sense in weighing out diabetic food, that they all died any way, and that they never reached maturity. He has been in the practice of medicine a long time, but I think he is wrong. It is proved that these children do have a normal span of existence for a good many years. I think the biggest fault lies in ourselves. We do not educate these children, or the mothers who care for them, sufficiently. I cannot help but believe that the more we educate an individual about his disease, the more equipped he will be to take care of himself. You do not want the patient tied to your apron strings any more than necessary.

THE VALUE OF BRONCHOSCOPY IN BRONCHIOGENIC CARCINOMA*

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There are two outstanding features of the present status of bronchiogenic carcinoma. Stated briefly, they may be said to sum up the progress which has been made in the past few decades on this disease entity. The first of these is the value derived from a closer cooperation of internist, radiologist, pathologist, and thoracic surgeon; and, the second is the important role played by the bronchoscope in the diagnosis and therapeutic measures applied to this lesion.

Medical literature is well supplied with recent articles on the subject of primary lesions of the lung and bronchi, many of which open the discussion with a comment on the increasing incidence in the past twenty years of bronchiogenic carcinoma; but, whereas intensive studies are in progress on occupational occurrence, sex dominance, and age incidence, most authors reach the conclusion that the increased number of reported cases is due primarily to advances in diagnostic facilities.

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ETIOLOGY

Chronic irritation offers one of the best explanations for the frequency of bronchiogenic carcinoma. Therefore, influenza epidemics as well as chronic tuberculosis have been suggested as possible contributing factors, but no proof has been found whereby they could be accepted as definitely causative. Furthermore, while opportunities for bronchial irritation are on the increase, it has likewise been impossible to prove any association on an etiologic basis from either clinical or experimental evidence secured up to the present time. Such irritations as tobacco smoke, exhaust gases, tar on roads, and dusty trades have been taken into consideration, with the result that the general concensus of opinion is that occupational significance in the incidence of bronchiogenic carcinoma is virtually nil, and housewives are as apt to develop the lesion as day laborers. Statistics show a predominance of the male over the female in incidence. Age apparently plays little part, since old and young are affected. However, the general rule with carcinoma applies in this instance, and the great majority of cases occur in middle and late middle life. Statistics further bring out two interesting phases: one, that localization is more frequent to the right lung than to the left; and the other, that localization to the inferior lobes is somewhat more frequent than to the superior.

A rapid review of this experimental evidence then strengthens the deduction that by far the greatest reason for the apparent recent increase in carcinoma of the lungs is the development of cooperation between the internist, radiologist, bronchoscopist, clinical pathologist, and thoracic surgeon, whose teamwork may develop the solution of the problem from every standpoint.

SYMPTOMS AND SIGNS

With its rise from comparative obscurity into a position of importance, primary carcinoma of the lung or bronchus has been found to possess interesting clinical and pathologic features, the most disconcerting of which are its frequent insidious onset, the fact that symptoms which might lead to a positive diagnosis often develop late, and, added to this, a tendency to mask its presence by simulation of other acute or chronic pulmonary infections. It has become essential, therefore, for clinicians to become conscious of its true prevalence and to be on the alert to discern initiating symptoms which may lead them to suspect its presence. Patients frequently have initial symptoms of acute respiratory infection or pneumonia, besides which the possibility of bronchiogenic carcinoma should always be considered in patients over 30 years of age, with pulmonary abscess, in patients who fail to recover from lobar pneumonia, and in patients with persistent cough, chest pain, hemoptysis, and steady weight loss. A survey of the commonest physical findings are weakness progressing to hemiparesis, anorexia, proneness to fatigue, a lag on the affected side, dulness to flatness on percussion, diminished or absent breath sounds, voice sounds, and tactile fremitus, associated with atelectasis or fluid, or both. Pain may be among the early symptoms and is commonly diffuse over the lower chest and epigastrium or in the shoulder and back. Cough, sometimes of many months or even years standing, sputum which is mucoid, either white or frothy, and is rarely purulent unless obstruction and infection occur, dyspnea and streaking or frank hemoptysis are also high in order of frequency. One of the most significant physical signs noted is evidence of bronchial obstruction as revealed by distant breath sounds, which is rarely seen in other pulmonary diseases without involvement of the pleura, and when it is observed without corresponding impairment of the percussion note over the area involved, carcinoma should be suspected at once. There are times when breath sounds are markedly reduced or absent, while the bronchial lumen on bronchoscopic examination does not appear to be greatly narrowed. Distant metastasis may also present the first evidence of primary bronchial carcinoma, but this obviously presents pathologic difficulties in tracing the site of the carcinoma. Metastasis occurs chiefly in the bones, in the

brain, in distant and regional nodes, and in the liver, pancreas, pleura, kidneys, adrenals, intestine, thyroid, pericardium, esophagus, lungs, diaphragm, and so on. The above more or less late characteristics are those of obstruction. Certainly the diagnosis should be made before these late signs.

BRONCHOSCOPY

It has become a well established fact that one of the chief factors in the more frequent antemortem recognition of primray malignant growths in the air passages is the more general employment of bronchoscopy in the diagnosis and treatment of chronic pulmonary diseases and the removal of tissue for microscopic examination. Roentgenography is likewise of inestimable value in the early recognition of these lesions, and, whereas it may not be pathognomonic, it at least often leads to a provisional diagnosis, which, of itself, is an initial step toward saving a patient who might otherwise be doomed to death. The ease with which an x-ray is obtained is a point in favor for both patient and physician, as against the prevalent conception of the dangers encountered as well as the possibility of trauma in bronchoscopy. Bronchoscopy, in fact, is not an exceptional, heroic, and dangerous procedure, and, if undertaken with care and skillful manipulation, is no more dangerous than exploratory operations in other regions. This means of visualization not only definitely establishes a positive diagnosis, but the location of the growth is determined and the surgeon is aided thereby in selecting those cases which are thought to be best suited for operation, in addition to obtaining definite evidence regarding the level at which the lobe or lobes may be amputated to reach the upper limits of the tumor. Of course, bronchoscopy may not determine the extent of the lesion and the possibility of malignancy should not be excluded on the basis of a negative bronchoscopy or biopsy, yet its value in the great percentage of cases cannot be denied, for it has been estimated that with the aid of this instrument over 75 per cent of all cases of bronchiogenic carcinoma can be diagnosed correctly. Statistical information further states that those patients upon whom a diagnosis is verified by bronchoscopy, live approximately two and a half times as long as those in whom the tumor has not been visualized, because of early institution of therapy.

X-RAY DIAGNOSIS

In the light of present roentgenologic knowledge, it has become possible through a more accurate understanding of the image presented by varying degrees of bronchial stenosis, to diagnose carcinoma of the bronchus in an early stage, despite the fact that carcinoma actually never shows directly in a roentgenogram until in a very advanced stage. This advanced roentgenologic work is being successfully employed locally by Dr. Granger in Charity Hospital. This means of diagnosis is based on studies which have revealed the fact that if the bronchostenosis is slight, it produces a slight opacity, due to diminished air content and hyperemia, and is localized to an area corresponding to the extent of the stenosed bronchus, which in lateral projection appears wedge-shaped, and is particularly pronounced during inspiration. A more marked stenosis causes a valve action resulting in rarefaction in the part of the lung which corresponds to the extent of the stenosed bronchus, and in lateral projection likewise appears wedge-shaped, with more or less pronounced convex limits. It is more pronounced during expiration. Finally, the practitioners of this advanced roentgenography claim that when the stenosis has caused complete occlusion, there results a massive opacity due to atelectasis and hyperemia, and localized to an area corresponding to the occluded bronchus. It appears wedge-shaped in lateral projection, with concave limits. The surrounding lung tissue is emphysematous. If the stenosis is chronic, bronchial carcinoma should always be suspected, and bronchography undertaken. True carcinoma of the lung or any tumor must grow, however, until it breaks into the bronchus to be diagnosed by bronchoscopy. Once these tumors, whether they be benign or malignant, have grown sufficiently to obstruct a bronchus, collapse of the

lung beyond the obstruction occurs, and only by bronchoscopy can this condition be differentiated from dense infiltration by carcinoma. Furthermore, the tumor must have an intrabronchial portion in order that a particle may be removed for biopsy.

LOCALIZATION

While it has been generally understood that bronchial carcinoma usually has its primary localization in the main stem of the bronchus or in one of its branches of the first order, increased diagnostic facilities are demonstrating that many early bronchial carcinomas are localized to branches of the second or third order, and that it may spread not only peripherally, out into the lung, but also in a central direction following the bronchi so that in the final stage it ends by infiltrating the stem bronchus itself.

The appearance of the tumors visualized bronchoscopically vary from the smallest nodule to a cauliflower mass, completely filling the main bronchus. The majority have an irregular granular surface, somewhat paler than the normal bronchial mucous membrane, and on removal are found to be extremely soft in consistency, and bleed freely. Occasionally they are harder and redder in color.

Bronchoscopy will reveal the presence or absence of tumor formation, although in some cases histologic examination will be necessary to differentiate between a tumor and granulous tissue. It is occasionally difficult to differentiate between the shadow of a mediastinal growth and a pulmonary growth, which is situated close to the hilum. In the former instance, bronchoscopy shows a narrowing of the bronchus from without, usually a scabbard-like flattening, as opposed to the projection of the tumor mass into the lumen, and the mucosa in the stenosed area is normal in appearance on section.

The past few years have encouraged the development of more accurate information on the pathogenesis of this condition, and considerable advance has been made along these lines in the adoption of the classification of these lesions as adeno-alveolar, squamous and "oat cell" carcinoma. Adenocarcinoma develops from columnar epithelium of the bronchus or from the mucous glands; alveolar carcinoma from the alveolar epithelium; and "oat cell" from a specific basal cell; while squamous cell carcinoma depends upon metaplasia from the columnar to the squamous epithelium.

THERAPEUTIC MANAGEMENT

The proper therapeutic management of bronchiogenic carcinoma is an important question. Advances in thoracic surgery have increased the proportion of patients for whom radical removal is possible, but a large number of patients present themselves in too advanced a stage to permit of these measures, and the growths have to be destroyed by less radical measures, or palliation alone is possible. There are two methods of treatment, irradiation and endoscopy with the bronchoscope. It has been advocated in employment of the latter, that the lesion be destroyed by means of an electric cautery or by the implantation of radon seeds. Radon seeds of platinum, gold, or silver may be inserted directly into the tumor or they may be applied in some form of container, which is left in the bronchus for a given time and then removed. There are definite variations in the technic employed, and only time and future experience will lead to the selection of the most desirable. Some operators insert the seeds directly into the tumor mass, instead of alongside of it in the bronchial lumen. In this way they can be distributed in different parts of the growth and are more likely to remain in position. The seeds become inert after fourteen days, and although they are known to migrate, no symptoms have ever been reported as caused by their presence.

The employment of either electrocoagulation or implantation of seeds is apt to open the lumen of a bronchus to such an extent as to relieve at least partially some of the atelectasis that is frequently present, with the result that there is better aeration of the diseased lung with drainage and a decrease in the size of the atelectatic area, as demonstrated by x-ray. It is possible to remove a pedunculated tumor endoscopically

with electrocoagulation; but it must be borne in mind that the effectiveness of local application of radon seeds bronchoscopically may be lowered by the inaccessibility of the growth and the relative radioresistance of the cells. The method, however, may be of value when used in conjunction with surgery, especially in those patients in whom a small amount of tumor must be left in the bronchial stump for technical reasons or in those patients in whom there is a local recurrence in the bronchial stump.

Although the study of primary carcinoma of the lung is in a stage of rapid and varied development, some phases of which are still baffling, a brief review of cases taken at randon will not only substantiate the progress, made diagnostically, pathologically and therapeutically, but will also serve to illustrate the assertions made regarding the lesion.

CASE REPORTS

The first case is that of a white male, about 48 years of age. He was admitted to the hospital with a complaint of abdominal pain. Upon a general physical examination, it was noted that there was some lagging on the right side, but, otherwise, there were no marked physical findings. An x-ray was requested, and it revealed a lesion in the right hilar region, with some atelectasis. The radiologist made a probable diagnosis of primary bronchiogenic carcinoma. Bronchoscopy followed and material was removed for biopsy, which positively established the condition as carcinomatous. In this instance there were no indications of the disease which would have prompted the patient to apply for aid until the condition was too advanced. He died shortly after admission to the hospital.

The second case is that of a colored male, 49 years old, who complained of coughing of six months' duration, with dull aching sensations in the chest. The cough was productive, but there had been no hemoptysis. The patient complained vaguely of a "fever in his stomach." A physical examination of the chest was negative, except for a slight lag on the left side, slightly increased vocal fremitus on the lower left chest, and slight dulness on percussion over the left chest posteriorly. A radiograph made three days later showed some infiltration in the hilar zone of the left lower lobe, suggestive of pneumonia or possibly bronchiectasis with pulmonary shrinkage. A bronchoscopy was then done and a lesion was noted in the left bronchus. A section was removed for biopsy, from which it was reported that upon dipping down from one surface, which was covered with a thin layer of stratified epithelium, there were a number of masses of embryonal epithelial cells occurring in irregular shaped groups, infiltrating through the entire area removed. It was declared definitely carcinomatous in character. A rib resection and a lobectomy were performed one month later. The patient died two days after operation, due to the shock of the operative procedure.

The third case is obviously one in which medical care was requested when it was too late to do anything for him. The patient was first seen complaining of pain in the right chest, and loss of appetite since a "cold" three months previous. The diagnosis at this time was encapsulated pleural effusion of the lower right chest with possibility of tumor. Five hundred c.c. of fluid were removed from the pleural cavity, and the patient was discharged from the hospital after four days. His second admission to the hospital was one month later, when he again complained of chest pain, with shortness of breath, increasing weakness, and continued loss of weight. The patient died one month after this of bronchiogenic carcinoma. The progress in this instance ran true to form. The physical examination of this patient was essentially negative, and in addition to the late complaints already mentioned might be added a poor appetite, and a "bad taste in his mouth." An examination of the chest revealed lagging on the right side posteriorly, diminished fremitus and breath sounds posteriorly from the scapular angle to the base. Anteriorly, no pathology was noted. The first radiographic report mentioned a homogeneous increase of density in the lower third of the right lung, obscuring the diaphragm and right heart border. A lateral view showed this density to be triangular and lying in the posterior half of the chest. These findings were concluded to be suggestive of fluid encapsulated between the right lung and posterior portion of the right diaphragm. Atelectasis in this region, however, could not be excluded. A second radiograph, taken after aspiration of the right pleural cavity, demonstrated encapsulated effusion in the lower right chest. A radiograph made at the time of the second admission of this patient to the hospital, showed increased density over practically the entire right chest. The mediastinal contents were not displaced. The trachea was retracted to the right. The conclusion reached at this time was that the findings were most likely due to a thickened pleura, plus fluid. The following day, after the aspiration of 800 c.c. of fluid, the radiograph showed hydropneumothorax of the right chest with a small amount of fluid. The lung was collapsed about one-third, and there was an increased density over the right base, possibly due to an atelectatic lower lobe. A third radiograph, taken after bronchoscopy, showed hydropneumothorax in the right chest with fluid at the level of the eighth rib posteriorly. No lipiodol could be seen in the lower right lobe, but was seen in the middle and upper right lobes and the lower left lobe. During bronchoscopy, a speci-

men was removed for biopsy, and the pathologic report pronounced the condition as bronchiogenic carcinoma, type III, with secondary acute and chronic inflammation.

The fourth and last report is that of a laborer from the country who was admitted to the hospital complaining of a cough, chest pain, malaise, and gradual loss of weight. These symptoms were of several months' duration. The patient stated that he coughed up blood and dyspnea was present. He was admitted to the ward and treatment for tuberculosis was instituted. The patient had no chills or fever in the afternoon, but complained of night sweats at times. He was slightly deaf and had been hoarse for five weeks. His appetite was poor, and he ate all food with discomfort. His physical examination was negative for the most part, and his lungs were found to expand practically equal; there was little difference in fremitus; slight impairment on the left side; breath sounds came through clearly; the sounds were rough over the apices and bases, and particularly the right apices and the left bases. There were no definite rales. Bronchoscopy was performed and three small sections of material were removed for biopsy. These showed a positive carcinoma of the bronchus, suggestive of the squamous type. X-ray reports on this patient showed consolidation of the major portion of the left upper lobe, and adhesions to the left bronchus with marked elevation of the diaphragm. One month later the x-ray revealed a large area of passive congestion and poor ventilation in the left upper lobe, most likely due to stenosis (carcinoma) of the second division bronchus. In the lower portion of the left chest there are definite signs of thickening and adhesions to the diaphragmatic pleura. This is a current case. Because of the large number of adhesions, this is probably not a case for pneumonectomy, but can better be treated by high voltage therapy.

These cases, selected at random, typify the general characteristics of the disease. They were victims, however, of late diagnosis, having presented themselves at a stage where there was little or no hope of instituting either effective or palliative treatment.

DISCUSSION

The facts brought out in reviewing the subject of bronchiogenic carcimona are not new ones, but they still need repeating, with special emphasis on the early recognition of this disease and its elimination before it gets a foothold. Early diagnosis is the real need in the treatment of lung cancer, and supersedes all other factors toward a favorable outcome. The rapid strides being made in thoracic surgery make it possible to cure some cases, and a more careful study of the many aspects of the disease as a whole, which in turn results in earlier diagnoses, will certainly provide means of instituting more efficacious therapy in those cases unsuited to radical measures. Bronchoscopy holds an important place in the field of early diagnosis of lung conditions, as it is the only means by which positive proof can be obtained before the final stages of the disease.

CONCLUSIONS

1. Early diagnosis, so absolutely essential for a favorable outcome in bronchiogenic carcinoma, is possible only by means of a close cooperation of internist, radiologist, bronchoscopist, clinical pathologist, and thoracic surgeon.

2. Bronchoscopy with biopsy is the only positive means of establishing a final diagnosis.

3. The two methods of treatment, which offer the best hope at present in the control of this dreaded disease, are surgery and radiotherapy, for those cases unsuited to operation.

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DISCUSSION

Dr. Val H. Fuchs (New Orleans): There are a few things that should be stressed and should be remembered constantly: The first is that there is no branch of medicine that can diagnose and treat these cases alone. The combined effort of the in-

ternist, thoracic surgeon, bronchoscopist and radiologist is needed. The beginning of these cases is very insidious. They come on gradually and the patient does not complain a great deal except of cough. It might be of benefit to remember that any patient who has a cough, with blood in the sputum and where tuberculosis has been ruled out, should be suspected of having malignancy until proved otherwise.

One recent case impressed upon me that factor. Last October I saw a very strong and well built male complaining of spitting blood-streaked sputum every morning upon arising. His sputum was examined and found negative for tuberculosis; a few pneumococci and streptococci were present but nothing else. At that time the patient was sent to an internist who went over him very carefully and decided he could not find anything wrong but felt sure, until proved otherwise, that there was malignancy. The patient was sent to a radiologist. This is the picture which was gotten back from the radiologist. (X-ray shown). You can see a perfectly normal lung. There is nothing at all in that lung that would make us suspicious of any pleural condition whatsoever. The patient was advised to have a bronchoscopy done; however this was not done as the patient put it off. The next time I saw the patient he was in Hotel Dieu, admitted following a case of grippe. His temperature would not go down and he continued to expectorate bloody sputum. Another picture was taken and showed the whole upper lobe on the right side solid. He was again advised to have a bronchoscopy done and consented to this procedure. Upon bronchoscopy a tumor presented itself in the right upper bronchus, extending down to the main bronchus. A section of the tissue was taken off and sent to the pathology department and was diagnosed as inflammatory tissue. In spite of this fact, the thoracic surgeon decided to do a pneumonectomy. The patient was operated on ten days ago. The lung was removed, under a great deal of difficulty. There were many adhesions and there was quite a lot of difficulty in controlling the pulmonary circulation, so much so that it took five hours to do the pneumonectomy. Unfortunately, the patient expired shortly after the operation was completed. The lung showed a bronchiogenic carcinoma about the size of a large grape, blocking the right upper bronchus.

Dr. C. J. Tripoli (New Orleans): The incidence of bronchiogenic carcinoma has gradually increased in recent years. This increase may be accounted for, in part, by more careful observation and better diagnostic procedures which are now available. However, I feel sure that these facts do not account for the relatively frequent occurrence of these cases at the present time.

As pointed out by the author, the etiologic factor, or factors, still remains the subject of conjecture. Among the many irritating factors, smoking tobacco has been incriminated. The logic of this statement is indeed quite interesting when we consider the increasing use of tobacco. It is quite true that lung cancer is far more frequent in white males. Its prevalence is increasing in the female. It has been only in the last ten to fifteen years that the use of smoking tobacco has been taken up by women and those who began using it then, are now reaching the cancer age. Notwithstanding the fact that lung cancer does occur in non-smokers as well, these observations are deserving of further study.

The diagnosis of carcinoma of the lung has presented to the internist one of the most interesting and sometimes the most perplexing problems. Certainly, therapeutic efficacy is in a large measure dependent upon early diagnosis. Surgical eradication offers the greatest hope in the earlier cases, as indicated, or for those cases which for one reason or another forbid any operative procedures.

The many phases of this problem have been diligently studied. At this meeting, Doctors D'Aunoy, Pearson and Halpert have exhibited their recent observations on the pathogenesis of the cellular components. Dr. Granger is now in preparation of a most impressive roentgenographic study of the various phases of this form of lung pathology which he permitted us to see at a recent meeting.

Early diagnosis, therefore, offers our greatest hope so far in the control of this dread disease. At this time I would like again to direct your attention to a few of the pertinent facts which will help us in early diagnosis. For example, any individual beyond the age of 40 years who for the first time has "hemoptysis" or "bronchial asthma" or "asthmatic bronchitis" or has a persistent, unexplainable, non-productive or mucoid productive cough should at least be suspected of having lung malignancy. The early serial roentgenologic signs have been clearly defined and are universally recognized by all roentgenologists.

Bronchoscopy offers a means of direct visualization of a large number of bronchiogenic neoplasia. It has become indispensable as an aid not only in differential diagnosis but in drainage of obstructed and infected areas, relief of toxemia and preparation of patients for surgical procedures.

As illustrated by our speaker, the combined efforts and close cooperation of internist, radiologist, bronchoscopist and surgeon are not only important but absolutely essential if we wish to influence the usual course of events in any case of lung carcinoma.

Dr. John T. Crebbin (Shreveport): It is not only one over 30 years of age, who may become affected, for young and old may become a victim. It is no respecter of age, or station in life. Statistics show that malignancy in this region is tremendously on the increase in this country.

An early diagnosis is of utmost importance. A biopsy is necessary in every case. In fact, this should be routine practice in every patient. By following this method, mistaken diagnosis will be

prevented and an early start of treatment will result. Many cases are lost by failing to have a pathologic examination made. This is the only method whereby a positive diagnosis can be made.

Relative to the treatment, not with the idea of taking exception, but only with the intention of emphasizing some facts gleaned from observation, Dr. Taquino states that a large percentage of cases die following surgery. This is of great importance, for all observers agree on this point and I fully concur. Apparently, our operators have not developed a proper technic and, until this has been developed, I would urge against operation.

It is generally agreed that deep x-ray therapy is the method of choice, in treating these cases. Following x-ray treatment many failures occur. I am of the opinion that the dosage was entirely too light. Massive dosage is indicated in treating all of these tumors. It is a mistake to give small dosage for this is at the expense of the patient. Furthermore, this region will tolerate just as large x-ray dosage, as any other region of the body. Radon needles are successfully used but massive x-ray dosage is advisable in each of these cases. This method of treatment offers the safest and surest results.

Dr. George J. Taquino (In closing): I want to elaborate a little on one point which Dr. Tripoli brought out, that is the subject of tobacco smoke. Jackson, in his textbook on "Disease of the Larynx," lists smoking as a possible factor causing malignancy. He says that the tobacco causes irritation and it is from irritation that a malignant condition is prone to develop. You do not even have to smoke, according to the theory of Jackson, but if you happen to be in a room where there is smoking the mere fact that you inhale tobacco smoke will be sufficient to produce irritation, not only in the larynx, but also in the tracheobronchial trees.

As already mentioned, a negative biopsy does not mean that carcinoma is not present. There are other signs, observed during bronchoscopy that are suggestive of malignancy.

Westermark in a recent article at the International Congress of Radiologists made the following observations: Bronchial carcinoma seems, in recent years, to be relatively more frequent in Sweden. In his material, cancer of the stomach occurs 6.5 times as often as cancer of the bronchus; while in Nystrom's material for 1911-12, stomach cancer occurred 75.5 times as often as cancer of the lung. The average is somewhat less than for cancer as a whole, not less than half the author's patients are under fifty years. Sex dominance in male, in five to one ratio; frequency in right lung in three to one ratio.

THE RADIOLOGIC ASPECTS OF BRONCHIOGENIC CARCINOMA*

A. D. MAYORAL, M. D.

NEW ORLEANS

The slide on the screen is taken from a current textbook of anatomy. It is an excellent diagrammatic representation of the bronchial tree. The trachea can be followed to its final alveolar ramification. The bronchi are well supplied with mucous glands. Epithelial cells abound through all these structures. Potential carcinomatous tissue is therefore plentiful.

Strictly speaking, bronchiogenic carcinoma is a malignant tumor arising from the epithelial cells of the lining membrane of the bronchi. Histologically, three groups are recognized, depending on the particular tissue in which they take origin: (1) bronchial from the lining membrane of the bronchi; (2) glandular, if arising from the glands, and (3) alveolar, if from the tissue of the alveolar sacculations. In mentioning this last group I feel that I must state that I am well aware of the fact that this group is denied by some.

I hardly need tell you that this differential group diagnosis cannot be made by the roentgenologist. It should not be expected of him—his resources are greatly taxed when he differentiates primary from metastatic lung malignancy.

The roentgenologic aspect of primary carcinoma of the lungs depends on three things: (1) the bulk of the tumor mass and its direct encroachment on the pulmonary tissue; (2) the modification in the architecture of the organ brought about by the interference of the tidal movement of the air, by the growth, and, (3) by a combination of both.

The following slides taken from proved cases of primary carcinoma of the lung furnish good illustration of what I have just said, the third slide being of particular interest to me because it only shows incomplete atelectasis of the left lower lobe.

*This and the following two papers are some of the presentations from a Symposium on Bronchiogenic Carcinoma read before the Orleans Parish Medical Society on February 14, 1938.

Attempted lobectomy resulted in death. Autopsy revealed a malignant growth infiltrating the lining mucosa causing marked stenosis, and widespread metastatic growth in practically every other organ. The symptoms were very meager.

The two slides to follow show a tumor growing in the upper lobe, occluding the main bronchus by extrinsic pressure and causing complete atelectasis. And finally one slide to show the typical x-ray picture of metastatic malignancy.

There are no pathognomonic x-ray signs of primary carcinoma of the lung. When interpreting the shadows cast by lung tumors, the roentgenologist must apply his knowledge of medicine to arrive at a diagnosis. The confirmation rests on tissue examination.

BRONCHIOGENIC CARCINOMA FROM THE BRONCHOSCOPIC ASPECT

A REVIEW OF SOME RECENT LITERATURE

HAROLD LESLIE KEARNEY, M. D.

NEW ORLEANS

One of the outstanding contributions in this field comes from Kramer and Som who report an analysis of 300 cases of carcinoma of the lung with 100 necropsies. These authors point out the importance of bronchoscopy as an aid in diagnosis of diseases of the chest and also call our attention again to the fact that in a certain proportion of cases a definite diagnosis of lung cancer cannot be made by endoscopic examination. Because of the progressive diminution in size of the bronchi, the bronchoscopist may be unable to visualize early bronchiogenic cancer in the smaller bronchial divisions because of his inability to enter the smaller tubes with this instrument.

LOCATION OF LESION

From the standpoint of location of carcinoma of the lung, Kramer and Som find the upper lobe of the right lung the most frequently involved region, the tumor occurring here in 21 per cent of their postmortem material. The left upper lobe was the original site of the growth in 17 per cent of their necropsies. Using the topographic classification suggested by Wessler and Rabin, they recognize three distinct groups of pulmonary carcinomata. These, with their incidence of occurrence in their series, are carcinoma of a large bronchus (62 per cent); carcinoma of a small branch bronchus (18 per cent); and parenchymatous carcinoma (20 per cent). Under carcinoma of a large bronchus they include tumors located in bronchi of the first, second and third order.

BRONCHOSCOPIC STUDIES

The bronchoscopic appearance of pulmonary cancer, they point out, depends on the type of growth, the duration of its existence, the presence or absence of superimposed infection, and on bronchial or tracheal compression from involvement of mediastinal nodes. Tumor of the large bronchus may show either ulceration or stenosis. Stenosis may be obturative from protrusion of the lesion into the lumen, in which case the tissue is friable and easily cut; or the stenosis may be infiltrative, in which case the lumen is narrowed from infiltration into the bronchial wall. In these infiltrative types, the mucosa is replaced by flat tumor tissue which is tough and difficult to cut. In the submucous type of tumor the narrowing of the lumen from submucous infiltration crowds the mucosa into the diminished lumen of the bronchus and produces longitudinal folds, and in time, a funnel-shaped stenosis. A fungating growth with an ulcerative surface, sometimes exposing the cartilaginous rings, is almost invariably carcinoma.

The carcinomata of the small branch bronchi are found by Kramer and Som to be detectable endoscopically in only those cases in which the growth has encroached proximally far enough to be visible to the bronchoscopist, which occurs in about 50 per cent of the cases. In these cases the tumor presents itself as an infiltrative growth producing rigid bronchi with characteristic absence of motility of the affected bronchi. The spur between the branch bronchi may become thickened and shortened. There may be marked distortion of

the bronchial tree.

Pulmonary cancer of the parenchymal type is not bronchoscopically visible unless the tumor has grown into a large bronchus. This type may sometimes cause marked bronchial distortion.

In the 100 necropsies reported by Kramer and Som, bronchoscopy was done during life in each case, and biopsy was done if feasible. In 70 per cent biopsy showed carcinoma. Biopsy was positive in 97 per cent of the group in which the tumor was located in the large bronchi. In 70 per cent of these cases the dominant lesion was stenosis and in 27 per cent ulceration was more prominent. In 3 per cent the tumors of the large bronchus could not be visualized for biopsy or bronchoscopic observation because of proximal bronchial or tracheal compression stenosis from metastatic mediastinal nodes.

GENERAL REMARKS

Of 27 cases of lung cancer associated with pleural effusion, nine cases showed both the biopsy and the pleural fluid to be positive for malignancy. Eleven cases showed positive biopsy and negative pleural fluid; seven cases showed negative biopsy and positive pleural fluid.

Kramer and Som found no apparent relationship between cancer of the lung and tuberculosis or syphilis. An associated tuberculous cavity was found in four and a positive Wassermann was found in four of their 100 necropsies. They found paralysis of the recurrent nerve in 14 cases and paralysis of the phrenic nerve in nine cases. They consider paralysis of the recurrent nerve in obscure disease of the chest as highly suggestive of carcinoma. They have not had a single proved case of paralysis of the recurrent nerve due to tuberculosis.

Lederer reports a case of fatal hemorrhage immediately following bronchoscopy in a case of pulmonary carcinoma. Necropsy showed cancerous invasion of the upper right pulmonary vein which had given way, resulting in the fatal bleeding.

Sweany comments that in the past fifty years, primary lung cancer has sprung from obscurity into a rather common disease. He feels that part or perhaps much, of this apparently increased incidence may be due to: (1) an increased life expectancy, throwing nearly 100 per cent more into the cancer age than existed fifty years ago, (2) increased knowledge of the cause of certain diseases (tuberculosis, bronchiectasis); (3) the tremendous effect on diagnosis brought about by the x-ray and bronchoscope; (4) increased zeal on the part of the medical profession and laity (better hospitalization, better transportation, more autopsies on unusual types of patients); (5) a changed attitude in pathologic interpretation of lung cancers, placing in this group many that were considered metastases or sarcomas. He agrees with Wells who said about cancer in general: "A high cancer death rate is an indication of good state of public health."

Of biopsy, Arbuckle says in answer to the old question of its advisability: "The reply should be that it is the only method by which the diagnosis can be definitely established at a time when it is worth while to the patient."

Kramer and Som, reporting a study of 23 cases of adenoma of the bronchus, state that these benign neoplasms at first glance create the impression of malignancy and have previously been reported as adenocarcinoma, endothelioma and small cell carcinoma. They point out that a representative biopsy specimen from an adenomatous growth must not be the ordinary superficial specimen, but must include deeper tissue which shows the characteristic solid alveolar arrangement of cells which are uniform in size, shape and staining characteristics. Metaplasia and inflammatory changes in the superficial specimen may mislead the pathologist. There are a number of reports in the literature of cured cases of malignancy of the bronchus, which they believe, both from the clinical history and from the published microscopy, are really non-malignant adenomata of the bronchus.

Kernan, reporting ten cases of carcinoid tumors of the bronchi treated by diathermy, mentions that he and Cracovaner reported one of these cases as a carcinoma of the

lung cured by diathermy. He stresses the importance of properly differentiating these tumors from true carcinomas, for even now he says competent pathologists report them as carcinomas.

SUMMARY

Carcinoma of the bronchi is a condition which nowadays is receiving much attention in the otolaryngologic literature.

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PATHOLOGIC ASPECTS OF BRONCHIOGENIC CARCINOMA

BÉLA HALPERT, M. D.†

NEW ORLEANS

An understanding of the pathologic aspects of bronchiogenic carcinoma requires a brief preliminary consideration of the normal structures of the air passages and their embryonic derivation. The exact origin of the cells lining the alveoli of the lung is still under discussion.[1] It seems certain, however, that they rarely, if ever, give rise to malignant growths. For this reason, carcinoma of the lung is usually bronchiogenic. The portion of the air passages which connects the alveoli with the trachea presents differences in the anatomic structure of its successive parts. These differences involve the mesodermal as well as the entodermal portions, though at present we are concerned mainly with the latter.

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HISTOLOGIC DATA

The mucous membrane of both main bronchi is identical with that of the trachea. In both locations it is smooth except posteriorly, over the membranous portion, where it is thrown into longitudinal ridges. The cells lining the surface are columnar and ciliated, with numerous interspersed goblet cells. Beneath these cells are several rows of other epithelial cells. At intervals lumina of ducts of serous and mucous glands open on the surface. These tubuloalveolar glands are located in the tunica propria and are more numerous in the membranous portion, where they are situated above as well as beneath the smooth muscle layer which spans the gap between the horseshoe-shaped rings of cartilage.

Beyond the point where the main bronchus enters the hilus and divides into two branches on the left and three on the right, a change occurs in the structure of the bronchial wall. In the mesodermal portion this change concerns the shape and arrangement of the cartilaginous skeleton, and the amount and distribution of the smooth muscle and the connective tissue. In the entodermal portion it concerns the surface pattern of the mucosa in that longitudinal ridges appear around the entire circumference of the lumen. It also concerns the arrangement of the glands in that practically all of their acini become situated external to the incomplete muscular coat.

With successive branchings of the bronchial tree the lumina decrease in size and the walls become more delicate. At a point where the lumina of the bronchioles narrow to about 1 mm. in diameter, the cartilage disappears and the mucosa becomes void of glandular structures. From this point onward the bronchioles become smaller and are lined by a single row of ciliated columnar cells with no goblet cells between them. A short distance further in the terminal portions of the bronchioles the ciliated columnar epithelium gives way first to non-ciliated cuboidal and then to low cuboidal epithelium, which finally fades into the lining cells of the alveoli.

The epithelial cells covering the mucous membrane of the bronchial tree from the stem to the minute branches are entodermal cells exhibiting a varying degree of differentiation and specialization. Apparently the undifferentiated entodermal ancestor or parent cell is capable of developing into a variety of cells. These include: ciliated columnar epithelial cells; goblet cells; cuboidal cells arranged into acinar and tubular structures producing a serous or mucous secretion; indifferent cells lining the ducts of these glands; and another kind of cuboidal or low cuboidal cells without cilia which line parts of the terminal bronchioles. In addition to the variety of cells listed, a varying number of other epithelial cells lie beneath the ciliated columnar and the goblet cells. These epithelial cells, like the basal cells in the epidermis, are lined up along the tunica propria, and their nuclei form one or several rows. These are the parent or "reserve" cells from which the ciliated columnar and the goblet cells are replenished. They naturally possess the qualities of their ancestor cells in that they may differentiate into any kind of epithelium which an entodermal cell is capable of producing.

PATHOLOGIC CONSIDERATIONS

These "reserve" cells, which so far, with few exceptions,[2] have escaped the attention of oncologists, are in my opinion the cells most likely to be implicated in the development of carcinoma of the lung. Whenever one of them, or a group of them, succumbs to an atypical proliferation, a malignant epithelial neoplasm of the lung arises. Such neoplasms may be classified into three main types: the reserve cell carcinoma proper, the columnar cell carcinoma, and the squamous cell carcinoma.[3]

The reserve cell carcinoma grows in solid masses composed of round, elongated (the so-called "oat cells") or polygonal cells forming no particular structure. Usually there is a palisade arrangement of the peripheral cells. The parent cell of this carcinoma, I believe, is the reserve cell from which ordinarily the ciliated columnar and goblet cells are replenished.

The columnar cell carcinoma is composed of solid masses of undifferentiated tumor cells as well as of columnar or cuboidal cells which form acinar, tubular, or papillary structures. This type of growth, as compared with the reserve cell type, is probably further differentiated in that it reproduces or imitates, but in a haphazard way, any one or more of the normal epithelial structures of the air passages. The parent cells of this type of carcinoma are, I believe, the reserve cells, many of which go on to maturation into the cell forms which they normally produce.

The squamous cell carcinoma, just as in other locations in which it is more frequent, is composed of nests of tumor cells, with or without intercellular bridges. The cells are arranged more or less concentrically, forming epithelial pearls with central keratinization. Such a neoplasm in the lung must naturally be regarded as of earlier ancestry than either the columnar cell or the reserve cell carcinoma, since at an early stage of its development the entodermal ancestor cell of the air passages has the property of producing stratified squamous epithelium. Under certain circumstances the epithelial cells of the air passages still produce stratified squamous epithelium, and also produce carcinoma of the same type.

In each of the three types of carcinoma of the lung there is a great deal of variation in the rapidity of the growth, the amount and character of the stroma, and the occurrence of secondary changes, such as hemorrhage and necrosis. The gross appearance of the neoplasms is dependent upon these changes rather than upon the actual cellular structure of the tumor parenchyma, and there are no criteria, therefore, by which the microscopic structure of a carcinoma of the lung can be predicted without histologic examination.

The most usual site of the primary growth of carcinoma of the lung is at or near the hilus. The location is usually the point at which the stem bronchus divides

or at which the first secondary branches are given off. The growth may or may not ulcerate the bronchial mucosa at once, but it soon infiltrates the bronchial wall and the surrounding pulmonic tissue, as well as the regional lymph nodes. Local extensions cause enlargement of the primary growth, and spread by the lymphatics and the blood stream is responsible for the appearance of multiple foci in the same lung and eventually in the opposite lung, and sometimes in such distant organs as the liver, suprarenal glands, kidneys, skeleton and brain.

SUMMARY

The lining cells of the alveoli rarely, if ever, give rise to malignant neoplastic growths. For this reason carcinoma of the lung is usually bronchiogenic.

The suggestion is advanced that the reserve cells are the parent cells of all three types of carcinoma of the lung: reserve cell carcinoma, columnar cell carcinoma, and squamous cell carcinoma.

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THE ALTERNATING PULSE

Very valuable diagnostic and prognostic information may be obtained from the simple procedure of observing carefully when the first beat comes through as the blood pressure is taken. This simple little observation is not often made, usually because the air is released from the sphygmomanometer cuff too rapidly. In the instance of a patient who has had suggestive symptoms related to the heart, or who has hypertension, or who has had questionable anginal attacks, very worth while is the noting that there is a difference varying from two to as much as ten or twelve millimeters of mercury in the appearance of the sound of every other beat of the heart as it comes through to the ear listening over the bend of the elbow. This finding indicates that that particular person is in ripe danger of having heart failure.

As Sodeman[1] has written, alternation should be sought for deliberately when the blood pressure is taken in patients who may have heart disease. It is certainly a very simple examination and every doctor has in his office or at the bedside the necessary equipment, namely the sphygmomanometer. It is often the only definite physical finding indicative of severe cardiac damage. As a matter of fact White speaks of it as the only pathognomonic sign known of weakness of the left ventricle. It occurs before there is peripheral edema or any signs of right-sided heart failure. It is of value in separating left ventricular disease from disorders of the lung which cause shortness of breath. So much for the diagnostic significance of the alternating pulse.

Prognostically it is necessary to differentiate between two types of pulsus alternans; those with extremely rapid hearts, especially if they have paroxysmal tachycardia, and those whose hearts are not unduly rapid. In the instance of paroxysmal tachycardia the alternating pulse is probably of no great significance but with patients with a slow heart rate, not over 90 per minute, the prognosis very definitely is bad if pulsus alternans is present. On an average the patients who have this finding will live only one or two years. Rarely and occasionally only they may survive as long as five years. The older they are the greater is the likelihood of their living longer than the young person. For example, in people of 40 or under as reported by Thompson and Levine,[2] the average duration of life after alternation was noted is only six months, whereas those who have passed the age of 70 survive for an average period of

nineteen months. In patients with hypertension life duration is fifteen and a half months, whereas in those who do not have hypertension it is only nine months.

It may be observed from these few statements, which might be immeasurably enlarged, that pulsus alternans may be observed before the heart shows any other signs of failing, that it is a very definite and easily obtained diagnostic finding in heart failure and that it is a very important prognostic finding when it is discovered.

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MEDICAL ECONOMICS

The reaction of the public press to the indicting of the American Medical Association, its officers and permanent secretaries of the various councils by the Grand Jury in Washington is most unfavorable to the Government. This action has aroused tremendous resentment amongst the medical profession. The feeling that the profession has been treated most unfairly is not confined to its members. Judging from the editorials from the lay press it is obvious that there are many, many others in this country who feel that the indicting of these officials was an underhand act to prepare the way for socialized medicine. It is a distinct and direct effort to harm the medical profession and to weaken its stand against socialized medicine. As one of the columnists writes in a most unfair presentation on the subject, the American medical profession is now behind the eight ball. There is no question but that this is the motivating purpose of the indictment. As an example of the reaction of the legal profession the statement of a distinguished lawyer might be mentioned. He said that it is the first time that he ever knew or heard of an act which had to do with financial and business relations being called on to lash a noble profession and to bring about a social change which is unnecessary and undesirable.

On these editorial pages we are reprinting the comments of Boake Carter which appeared in a recent number of The New Orleans States. It is through the courtesy of this publication that we are permitted to reprint Mr. Carter's article. It expresses well the feelings that the great majority of the profession have in regard to the underhand measures that have been taken by a few enthusiastic, misguided Washington officials to chastise medicine. It should be read and re-read.

It is a remarkable commentary on our present day life that there should be held up to public scorn a profession such as that of medicine, which has always upheld the finest of traditions, which has labored day and night in the care of the sick, rich or poor, and which has alleviated sickness and death to such an extent that morbidity incidence and death rate have fallen to a degree which is astounding. In no other country in the world is there a comparable record of decreasing illness and diminishing death rate. That medicine should be punished and held up to public ridicule because it has been through the efforts of organized medicine that quacks have been kept in restraint, that hospitals have the efficiency they have and that medical service is as excellent as it is, is utterly ridiculous. It is almost entirely through the efforts of the American Medical Association, through its policing powers, that medical ethics is where it is today, that quackery is on the decrease and that malpractice is practically non-existent. It should be to the glory of organized medicine that such an honest, clean profession exists. Benighted reformers in Washington have done their best to destroy the faith of the American people in their physicians and doctors.

CASE OF THE DOCTORS—SOCIALIZED MEDICINE DANGER AHEAD*

The mass-production mania has now engulfed the medical profession.

The government has succeeded in obtaining indictments against the American Med-

*Reprinted from The New Orleans States, December 27, 1938.

ical Association and 21 of the nation's leading physicians and surgeons as conspirators to violate the anti-trust laws and prevent "trade."

The "trade" is group medical practice performed on a cooperative basis. The scene of the battle is the District of Columbia.

The group medicine disciples charge the A. M. A. with bringing pressure to bear on hospitals and the 120,000 out of the 140,000 doctors in the United States who are members, to prevent the operation of group medicine.

The medical profession retorts that the Sherman anti-trust law cites restraint of "trade"; that the practice of medicine is not a "trade" but a "learned profession"; that anything which prevents the right of a patient to free choice of his own doctor is dangerous to the public health.

There are many points to be remembered before taking up cudgels for either side. First, the government is pushing the case and the administration has a mass-production public health scheme it desires to foist upon the public. The indictments, therefore, serve as excellent government propaganda, even should the government lose the case in a court of law.

Further, if organized medicine is not permitted to lay down some code of ethics and rules, by which doctors must be guided in their conduct, and by which they may be disciplined for infraction, why does the same administration encourage the formation of labor unions, which establish rules by which workmen are disciplined when they break the rules?

There are various kinds of organizations which give group medical care in the United States. Their number totals well over 2000. Upon hundreds the A. M. A. has stamped its approval because they did not violate the fundamental right of a patient to pick his own doctor. But there are others which do not permit such free choice and which furthermore, require a third party to hire and sublet the physicians' services. In obtaining the indictments the government has made no effort to make this vital differentiation clear to the public.

It has long been a popular cry—fostered by rabble rousers and government bureaucrats—that the poor cannot obtain adequate medical treatment because of too high fees and hospital prices; that doctors and hospitals are afraid to lower their scales for fear of being "cracked" by the A. M. A.

If all the hours of free treatment by physicians to people who are too poor were recorded, the total would run into astounding figures. If one man had all the dollars that doctors have knocked off their fees in treating patients they well knew had little money to pay, that man would be a billionaire several times over.

Medicine is not a business. Nor could it be described as a trade. It is the profession of healing. It is the healing of the ills of the human body. Each body has its own peculiar idiosyncrasies. Since when has it been possible to hand out healing on a mass basis and expect proper results?

A peculiar sense of intimacy arises between doctor and patient, just as a sense of intimacy rises between lawyer and client. The patient who believes he is just another item of cattle to be jabbed with a needle by a man whose salary is being paid regardless of what sort of work he does—how good or bad he may be—is the one who revolts against the principle of "medicine-on-a-mass-production" basis.

To establish a system where mediocrity is its keynote is to toy with human life—toy with the health standards of the nation. In neither instance is that benefiting mankind. Offering a palliative and attempting no cure is not medicine. It is bureaucratic cruelty.

As a patient, I have been to my doctor many times. And many times he gave me neither medicine, pills, nor cut out my gizzard. But it was worth the money—a small fee—to learn that I did not need medicine.

It is conceded that the A. M. A. is not perfect. This writer long ago contended that its control was too conservative for

these modern days; warned that rigidity of control would some day flare back in its face. It must also be acknowledged that the A. M. A. has eased its codes considerably in the last five years. But in any case, it is the guardian body which sustains the high standards of healing used in the United States, and it is pitiable to see the power of the United States government being used to undermine the confidence of laymen in the integrity and decency of their doctors.

To be sure there are crooked doctors. But are there not also crooked lawyers? If the government desires to bedevil the A. M. A. as an organization restraining "trade," then let the government also bedevil the American Bar Association for similar reasons.

This, of course, it would never do. There are too many lawyers working for the government!

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TRI-STATE HOSPITAL, INC.

Shreveport

The meeting was called to order on January 12, 1939, by Dr. J. E. Knighton, Sr., with twenty-four members and six visitors present. The minutes were read and approved without correction. There being no unfinished business the matter of choosing annual officers was brought up and the following officers elected: Dr. T. J. Bush, chairman; Dr. Will P. Butler, vice-chairman; Dr. E. W. Booth, secretary, and Dr. J. E. Knighton, Jr., to retain his position in charge of the programs. It was moved and seconded that the secretary dispatch a note of sympathy to Drs. W. S. and D. L. Kerlin on the death of their father.

Dr. C. R. Gowen presented the case of a young, white, married female for whom interruption of pregnancy was done elsewhere after five months of gestation because of pernicious vomiting; emesis continued and pulmonary tuberculosis was discovered. Roentgenography revealed cardiospasm which was successfully treated by dilation, lavage, diet and antispasmodics. The case was liberally analyzed, and the question of anatomic surgery as done in Hirschsprung's disease was brought up.

Dr. T. J. Bush gave the history of a young, white female who six months previously noted a firm mass in the left upper abdomen. One fleeting attack of vague abdominal pain and slight occasional periods of nausea were experienced. A tumor mass was palpable in the left hypochondrium and cystoscopy revealed displacement of the left ureter laterally. There was no evidence of left renal pathology and operation was done. This disclosed a firm irregular nodular retroperitoneal mass about the size of a grapefruit, lateral to the spine, medial to the spleen and posterior to the stomach. Dr. Butler stated that the tumor was an actively malignant connective tissue tumor of unknown origin, and the diagnosis was a spindle cell sarcoma. Various angles of the case were discussed.

A summary of the Hospital services and of the deaths occurring in December was given with discussion. The meeting adjourned to reconvene, February 9, 1939.

Willis Taylor, M. D., Sec.

GRADUATE SCHOOL OF MEDICINE

LOUISIANA STATE UNIVERSITY MEDICAL CENTER

New Orleans

The scientific meeting of January was called to order by Dr. James T. Nix, Dean of the Graduate School of Medicine. Dr. Robert Cooper presented the following paper.

INTRAVAGINAL ROENTGEN THERAPY IN THE TREATMENT OF CARCINOMA OF THE CERVIX

Preliminary Report

The treatment of carcinoma of the cervix with x-rays delivered through a vaginal speculum is by no means a recent idea. In 1902 Caldwell[1] described a tube for intracavity irradiation which had the cathode in the spherical part and the anode in the end of one arm so that it could be introduced into body cavities for close irradiation of malignant tumors. In 1904 Allen[2] described the intravaginal irradiation of carcinoma of the cervix thus, "My own method is best described as follows:—the patient lies with the feet and legs supported in leather straps or broad rubber bands suspended from the chandelier or ceiling. The speculum is introduced through the central opening in a pad of vulcanite against which is placed the tube holder shield with large fenestrum, or the x-ray tube is suspended in front of the shield by separate cords."

Other radiologists tried the method at about this time, but it seemed never to have gained favor because of the hazard of shock, and because production of more efficient x-ray equipment made

possible the external radiation of the pelvis. To quote Thomas[3]—"It is obvious that it was the effort to treat gynecologic conditions more successfully which led directly to great progress in roentgen therapy because the cross-fire technique was first adapted to the treatment of these pelvic conditions."

Research by Schafer[4] and Witte with the Lenard cathode ray tube in 1929 led to the development of a new "body cavity tube"[5, 6, 7] which was built by Seimens, Reiniger Co., Berlin. This tube has been used with seeming success not only in the treatment of primary cervical carcinoma, but also the parametrial extension of the disease. The tube is shock-proof and is counter-balanced with weights under a gynecologic table so that after the patient is in position the tube can be swung up easily and introduced into the vaginal speculum. The anode end of the tube can be placed as close to the cervix as desired. The primary beam can be directed straight forward, or a special adapter with metal grid strips may be placed over the end of the tube so that only the rays which leave the anode at an angle of 45° may be utilized when it is desired to treat the parametrium from either lateral vaginal fornix. In this manner large doses of filtered x-rays can be directed through the broad ligaments toward the pelvic walls and theoretically it seems to be sound therapy when used in addition to the radium tandem and external cross-fire technic. The tube is operated at 90 kv. and 4 ma. and with proper filtration will deliver x-rays of the quality of .7 mm. Cu half value layer.

To quote technic or results is not within the scope of this paper, but the reader is referred to recent articles on the subject by Schafer[8], Martius[9] and Ericksen[10] who offer no five year survival statistics, but who are very enthusiastic after having used the method for several years.

The attempt to employ intravaginal x-ray as a preliminary treatment to the application of radium was begun at the Charity Hospital in January, 1938. It was noticed that in obese patients with carcinoma of the cervix, little or no regression of the primary lesion was obtained by intensive external cross-fire radiation of the pelvis due to the relatively small depth dose effective at the cervix. Therefore the intravaginal approach was tried in order to secure sufficient shrinkage of the tumor mass to facilitate the introduction of a radium tandem.

The apparatus used was not shock-proof, and to lessen this hazard the patient was placed in a knee-chest position over a large rubber covered bolster. In this position the patient was fairly comfortable, the weight of the body being partially supported by the knees, and the danger of movement of the thighs and contact with the high tension current being minimized.

The largest size glass Ferguson speculum which the patient could tolerate was inserted into the vagina to visualize the cervix and protect the mucosa of the vaginal walls. Those patients who could not permit the introduction of a 3.5 or 4 cm. speculum were not accepted for treatment. A collar of lead rubber was fitted around the speculum for protection of the perineum and both were held in place by a master cone with a 3.2 cm. aperture fitted into the flange of the speculum. The x-ray tube was adjusted by looking through its spherical portion, with the assistance of a flashlight, so that the primary beam would pass through the glass speculum and fall directly upon the cervical mass fitted into its beveled end.

TECHNIC

A 100 kv. air cooled Coolidge therapy tube was used and the factors employed were 90 kv., 5 ma., no filter, 120 r.p.m./ air at 35 cm. This superficial technic was chosen as it was the only feasible one with the apparatus available, and too, it was desired to determine what effect unfiltered x-rays would produce on cervical carcinoma. Thirty patients in all were treated but only twenty-five finished the prescribed series. Of this number one patient received 400 r daily (3 mm. Al filter); eight patients received 680 r daily—no filter; twelve patients received 800 r every second day—no filter; four patients received 1200 r every second day—no filter.

The total dosage varied from 4,000 to 10,000 r, with 16 patients receiving 5,000 r. The intravaginal treatment was finished before the external irradiation was begun. The cross-fire technic to the pelvis and factors were as follows: 200 kv., 20 ma., 50 T. S. D., 0.5 mm. Cu, 2 mm. Al filter; six portals (two anterior, two posterior, two lateral), 10 x 15 cm., 42 r.p.m./ air. Two portals were treated daily, 200 r. per port to a total of 1600 r per port. Each portal was treated every third day.

The application of radium followed in most cases in two weeks. The radium technic was that of the French school (low intensity, heavy filtration, long time irradiation). The uterine tandem contained three tubes (10, 10, 5 mg.) with 1.5 mm. Pt filtration; the three vaginal colpostats contained a 15 mg. radium tube each with the equivalent of 2 mm. Pt filtration. The colpostats were held in place by iodoform "lap sixes." The radium applicators were removed every forty-eight hours, sterilized and reapplied. The total radium dosage was from 6,000 to 8,000 mg. hrs. with most of the patients receiving 7,000 mg. hrs.

The cases selected for intravaginal treatment were those having large cervical tumors of clinical stage II or III where the tumor mass obscured the external os but which could be fitted into the end of a large Ferguson speculum.

RESULTS

The immediate effect of the intravaginal radiation was pronounced. Secondary infection was cleared up and bleeding was stopped in all cases. The tumor mass regressed to within one-third to

one-half of its former size and in some cases completely disappeared before external irradiation to the pelvis was begun. In a few patients the vagina showed a low grade erythema in the vaginal fornices, but it was transitory, and the pyrex glass of the speculum proved to be an adequate protection to the mucosa. It was found that the higher doses of 680 and 800 r gave the best results, but the four cases receiving 1200 r at a sitting experienced no untoward effects except that the knee-chest posture for so long an exposure proved tiresome for the patient. No patients were shocked, but two received superficial burns on the thigh from scattered irradiation when the lead foil covering the legs slipped. These burns later healed.

SUMMARY AND CONCLUSIONS

1. Twenty-five patients with stage II and III carcinoma of the cervix were treated with intravaginal x-ray in addition to external cross-fire irradiation to the pelvis.

2. All patients showed prompt clearing up of secondary infection, cessation of bleeding and marked regression of the tumor mass.

3. No patients developed constitutional symptoms or radiation sickness during the application of the intravaginal irradiation.

4. The regression of the tumor mass following irradiation markedly facilitated the dilatation of the cervical canal for the application of a radium tandem. This was of particular value in obese patients.

5. It is not thought that the application of superficial intravaginal x-ray therapy to carcinoma of the cervix had any appreciable effect upon parametrial extension of the disease.

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HUTCHINSON MEMORIAL CLINIC

New Orleans

Scientific Session on the Clinical Significance of Newer Methods for the Diagnosis of Intestinal Parasites, conducted by the Department of Tropical Medicine and Parasitology, Dr. E. C. Faust presiding.

Evaluation of the Older and Newer Technics (Dr. E. C. Faust): The available methods for diagnosis are as follows: I. Macroscopic or gross diagnosis.—1. Information obtained from inspection of the stool, whether dysenteric, i.e., with blood and mucus, diarrheic, i.e., watery, or tarry (suggestive but not diagnostically specific); 2. recovery of worms, as ascarids or pinworms, or parts of worms, as tapeworm "segments", evacuated in the feces or crawling out the anus. II Microscopic diagnosis.—A. Older technics. 1. Examination without attempts at concentration: (a) Films of feces, or blood and mucus discharged from the bowel, with or without dilution with tap water or physiological salt solution, (i) unstained, (ii) iodine-stained (Lugol's solution) for Protozoa, (iii) hematoxylin-stained for Protozoa; (b) films from proctoscopic examination; (c) films obtained following saline purgation or high enemas; (d) anal swabbing for pinworm eggs; (e) Stoll technic for counting helminth eggs. 2. Attempts at concentration: (a) For concentration of both Protozoa and Helminths, (i) centrifugation, (ii) sedimentation; (b) for concentration of helminth eggs only, (i) brine-floatation, by superimposed slide or by loop removal, (ii) Lane's centrifugal-floatation, with superimposed coverglass, (iii) hydrochloric acid-ether levitation, (iv) sugar solution or glycerine, levitation; (c) culture of *Endamoeba histolytica* or *Strongyloides*. B. Newer technics. While the older technics utilized in routine examination of feces have many excellent points in their favor, they fail to provide common methods for concentrated recovery and accurate diagnosis of both Protozoa and Helminths. Any improvement should be primarily directed towards the development of simple technics for the more ready recognition and diagnosis of both protozoan and helminth infections. This implies: (1) need for concentration of the organisms, i.e., their separation from fecal material and (2) their recovery in a condition which permits specific diagnosis.

Methods used by the Department of Tropical Medicine of Tulane University in attacking the problem.

1. A basic quantitative study was carried out in 1937 to determine the actual enrichment effected by centrifugation and by some floatation technic which we hoped to develop, suitable for the diagnosis of both Protozoa and Helminths. After many tests an aqueous solution of $ZnSO_4$ (sp. gr. 1.180) was found to be eminently satisfactory for this purpose. The results of this study showed that, with the cysts of *Endamoeba coli* as a standard

and with the unconcentrated iodine-stained film as a basis of comparison, the hematoxylin film had a 26 per cent loss of cysts; centrifugation, a 26 per cent loss; sedimentation, a 60 per cent loss, and $ZnSO_4$ centrifugal-floatation a 13 per cent loss. However, due to a proportionately greater loss of feces than of cysts, 16 centrifugations actually concentrated the cysts four-fold, three centrifugations, two-fold, and $ZnSO_4$ technic, four hundred-fold. Tests with *E. histolytica* cysts and hookworm eggs were equally encouraging.

2. Knowing the superior diagnostic potentialities of the $ZnSO_4$ centrifugal-floatation technic, the next step was to test it, by comparison with other technics, in actual routine laboratory diagnosis. A study of several hundred specimens during the summer of 1938 provided the following information: (1) The direct iodine-stained fecal film is diagnostically comparable to the hematoxylin-stained film for *E. histolytica*, but neither provides more than a fraction of the parasite yield present in a stool specimen. However, it is necessary to utilize one or the other of these direct films in order to obtain diagnosis of Protozoa in specimens that contain only trophozoites and precysts. (2) Centrifugation is very little better than unconcentrated films for either Protozoa or Helminths. (3) Brine floatation technics and Lane's centrifugal-floatation with brine as a levitating medium are excellent for concentrating most helminth eggs but shrink protozoan cysts so that they cannot be diagnosed. (4) $ZnSO_4$ centrifugal-floatation technic (sp. gr. 1.180), by any of the three methods of removing the surface film, is excellent for detecting small numbers of all protozoan cysts and helminth eggs present in the feces. In the series studied by us it doubled the diagnostic yield of Protozoa and multiplied by seven to ten the helminth infections, compared with the direct fecal films and centrifugation. The loop removal of the surface film is probably the most satisfactory because it is the simplest to carry out. (5) Since eggs of the pinworm (*Enterobius vermicularis*) are not commonly layed within the bowel, perianal swabbing is necessary. The NIH (National Institute of Health) cellophane anal swab has been found by us to be 74 times as efficient as unconcentrated films, five times as efficient as brine floatation and four times as efficient as the $ZnSO_4$ technic, in detecting pinworm infection. (6) A certain percentage of patients with amebiasis confined to the region of the cecum and appendix have no diagnosable evidence of the organism in their feces. In these cases saline purgation, or, if this is contraindicated, high tepid enemas of physiological salt solution, should be used to wash out the large bowel. Flecks of mucus in the discharge should then be immediately examined microscopically for amebae. (7) Intestinal Protozoa and many of the Helminths have a cyclical production and discharge respectively of cysts and eggs. Hence a single negative specimen, after examination by the best technics, will not necessarily mean absence of parasites. At least three examinations several days apart should be undertaken before a "negative" diagnosis is justified. For amebiasis six examinations are desirable and for oxyuriasis seven anal swabs are necessary. (8) For routine fecal examination of all patients in the Hutchinson Clinic we recommend the following: (a) The direct fecal film, one-half unstained and one-half stained with D'Antoni's iodine solution; (b) the $ZnSO_4$ centrifugal-floatation technic with loop removal of the surface film, stained with D'Antoni's iodine solution and mounted with a coverglass. (9) For patients with a history of oxyuriasis we recommend routine use of the NIH cellophane anal swab. (10) For patients suspected of having amebiasis, but diagnosed as "negative" after three complete examinations of the feces, we recommend either saline purgation or high tepid physiological saline enemas.

Demonstration of Technics (Dr. Willi Sawitz): The technics previously used in the Parasitology Laboratory for the recovery of Protozoa and Helminths in feces were the direct fecal film, unstained and iodine-stained, sometimes supplemented by the hematoxylin-stained film, and centrifugation. Since centrifugation has been proved to be no more efficient than the unconcentration technics, it is now replaced in our Laboratory by the zinc sulphate centrifugal-floatation technic, which has been found to be very satisfactory.

For routine fecal examination, a broader, so-called "fecal slide" is used in preference to the smaller microscopic slide. The broader slide (1½ by 3 inches) is used to prevent spilling of the fecal preparation and thus contamination of desk or microscope. For the direct film, a representative fleck of the fecal sample is transferred with a wooden applicator into one or two drops of physiological salt solution on a fecal slide. It is thoroughly mixed and spread over an area covering about the size of two 22 x 22 mm. coverglasses. One part is covered with a coverglass and to the other one drop of D'Antoni's iodine stain is added, mixed and then covered with a coverglass. For preparation of a supplementary hematoxylin-stained slide a representative fleck of the fecal specimen is transferred with a tooth pick or wooden applicator onto a microscopic slide and streaked out as evenly as possible; before it has time to dry, it is fixed by immersion in hot Schaudinn's fluid. It is then run through the hematoxylin-staining procedure. While the hematoxylin-stained film has the advantage that it can be examined with oil immersion magnification and kept permanently, it is so much more laborious and time consuming, that the direct iodine-stained film technic is employed as routine laboratory technic. Either of these unconcentration technics, however, is necessary in order to detect those infections in which only trophozoites and/or precysts occur. There is as yet no satis-

factory concentration technic for the trophozoite or precystic stages of Protozoa.

For the zinc sulphate centrifugal-floatation technic a fecal suspension has to be prepared. Lukewarm tap water is added to the fecal sample which is broken up by shaking. This suspension is strained through one layer of wet cheesecloth into a Wassermann tube, and the preparation centrifugalized with the International clinical centrifuge. The time allowed for each centrifugation is between 45 and 60 seconds at top speed (i.e. 60 to 90 seconds from the time the centrifuge is turned on until it is turned off). Less time will result in loss of diagnostic material; more time does not improve the results. The supernatant fluid is now decanted and water again added. The sediment is broken up by shaking and the preparation recentrifugalized. This procedure of washing is repeated until the supernatant fluid becomes clear. It usually takes three to four centrifugations, the number of times being directly dependent on the amount of fecal material used and the consistency of the feces. The most satisfactory amount is somewhat less than half a gram of feces, which will just fill the concavity of the Wassermann tube. The last supernatant fluid is poured off and about two cubic centimeters of zinc sulphate solution of specific gravity 1.180 are added. This zinc sulphate solution is best prepared by adding 386 grams of $ZnSO_4$ U. S. P. granular to 1000 cu. cm. of distilled water. The packed fecal material in the sediment is broken up either by tapping the bottom of the tube or by shaking the tube in order to obtain a uniform mixture. The tapping technic is necessary for quantitative work; shaking by inverting the tube is quite sufficient for routine laboratory purposes. The tube is now filled to within half an inch of the rim with the zinc sulphate solution and is centrifugalized for about 45 seconds at top speed. The diagnostic material is now floating in the surface film and can be removed onto a slide by touch or loop removal technic. For the former, zinc sulphate solution of the specific gravity 1.180 is added until a small convex meniscus is formed over the level of the tube. A clean fecal slide is brought in contact with the meniscus, care being taken that the tube itself is not touched. The slide is then turned right-side up, one drop of D'Antoni's iodine solution is added and the slide rotated manually to insure uniform staining and to shift the material towards the center. The preparation is then covered with a coverglass. This technic gives quite satisfactory results, but it demands that the slides be perfectly clean. Even a trace of grease on the slide may prevent diagnostic material from adhering to the slide. Therefore, the loop removal technic is preferred. A bacteriologic loop is used. In order not to disturb the surface film, the loop is carefully inserted vertically just within the wall of the tube beneath the meniscus, turned horizontally and moved towards the center of the film. A loopful of levitated material is taken from this undisturbed portion of the film and is transferred onto a fecal slide. Two, three or more loops of material may be used. One drop of D'Antoni's iodine solution is added and the slide rotated manually to insure uniform staining and to shift the material towards the center. The preparation is then covered with a coverglass.

These technics are efficient for the diagnosis of all protozoan and helminthic infections in feces, except the seatworm, *Enterobius*, since *Enterobius* eggs are usually not deposited in feces but rather on the skin of the perianal folds. The best site for the recovery of *Enterobius* eggs is, therefore, the material obtained by scraping the perianal folds.

For the diagnosis of *Enterobius* infection the NIH swab is employed. The NIH swab is a glass rod, the tip of which is wrapped with cellophane which is held in place by a rubber band. The skin of the perianal fold is swabbed with this cellophane-tipped glass rod. It is not introduced into the anus. The glass rod may be kept in a glass tube three or four days before it is examined. For examination, the rubber band is pushed back and the cellophane flattened by means of a forceps or hemostat. It is placed face downwards into one or two drops of physiological salt solution on a slide and pressed between two slides by means of a metal compressor or clamps. It is then examined with low magnification.

Clinical Implications (Dr. J. S. D'Antoni): The number of positive diagnoses of intestinal parasitic infections has been increased by the utilization of the zinc sulphate centrifugal-floatation technic.

Dr. Faust has shown that a diagnosis can be made twice as frequently for *Endamoeba histolytica* infections by the use of the new method; however, this figure is based on findings in a group heavily infected with this parasite, whereas in patients harboring relatively few of these amebae, i. e., light infections, like many of those in the Hutchinson Clinic, an even greater increase in the diagnostic yield may be anticipated. Cases with light infections, previously not diagnosed because of inefficient methods, will now be diagnosed, and intestinal parasites as a group will be found to be more universal and, in turn, the incidence, to appear much higher.

From the clinical viewpoint we are confronted with two questions: Are these individuals harboring a parasite which is not a tissue invader but is simply a lumen commensal, or are these parasites producing clinical symptoms which were formerly diagnosed as neurasthenia, chronic cholecystitis, chronic appendicitis, or colitis? Of paramount importance to the physician is the question of treatment. Shall specific medication be given all cases harboring pathogenic parasites?

Since every individual harboring pathogenic parasites is a hazard for the community as well as for himself, the necessity of eliminating this danger is obvious from the public health point of view. On

the other hand, the physician has to consider the cost of treatment, since many drugs are too expensive for his patient. Therefore, the decision must be made on the basis of whether the parasite is likely to produce symptoms of clinical grade.

In infections with *E. histolytica*, the only known pathogen in the group of amebae, even the lightest infections have to be treated, since the danger of the development of an acute amebic enteritis or of an amebic liver abscess is always present, although for a time no symptoms may be detected. Even those who consider the possibility that *E. histolytica* sometimes may live as a lumen parasite, admit this danger.

In the group of intestinal helminths those of importance in this area include *Ascaris*, *Trichocephalus*, *Strongyloides*, hookworms, *Enterobius* and the tapeworms.

1. *Ascaris.* In ascariasis we do not expect an increase of diagnosed cases by the new technic, since one female lays between 100,000 and 200,000 eggs daily, so that infection with a single female can readily be diagnosed by plain smear examination. Patients having even light infections with *Ascaris* should always be treated until cured, not only because of the actual and potential damage produced by this worm, but also because patients, most commonly children, seed the soil of their environments with *Ascaris* eggs, which constitute a prolonged menace to themselves and their associates, because of the large number of eggs produced by each worm and the unusual resistance of the eggs in the soil to desiccation, and freezing.

2. *Trichocephalus.* Since the number of *Trichocephalus* eggs discharged in the feces is probably not an index of the worm burden carried by the patient, the expected finding of additional cases by the new method does not necessarily mean that these are cases of light infection. On the contrary, this may prove to be the only means by which clinical infections might be diagnosed.

3. *Strongyloides.* In strongyloidiasis we anticipate the discovery of a higher percentage of cases, since $ZnSO_4$ centrifugal-floatation levitates the larvae in a diagnosable state. The menace of this parasite, and particularly the danger of superinfection, hyper-infection and reinfection warrant treatment. Besides, the finding of a single larva does not permit an estimation of the intensity of the infection. Some idea of the stage and degree of clinical involvement of this infection may be obtained by the blood picture, for in acute cases we usually see a high eosinophilia with leukocytosis, whereas in the chronic case leukopenia with a lower eosinophil count is present. It is in the latter individual that superinfection, hyper-infection and reinfection most frequently occur; in these latter cases the disease is most insidious and frequently serious.

4. Hookworms. In cases of hookworm infection the expected increase will probably be due to the detection of lightly infected persons, since the presence of less than 24 adult worms will usually show no eggs on 3 unconcentrated fecal smears. However, with the $ZnSO_4$ technic, the presence of a much smaller number of worms will be diagnosable.

Although we have no definite proof, we can feel almost certain that toxemia is not usually produced by such a small number of worms. Nevertheless, treatment of individual cases seems to be indicated.

5. *Enterobius* (the pinworm or seatworm). The NIH swab technic has already provided the diagnosis of a much larger number of positive cases. The number of eggs found by anal swab is no index of the number of worms actually present. Since one female *Enterobius* worm lays between 10,000 and 20,000 eggs in the anal region, contaminating the underwear, clothes and bed linens, the spread of this disease is both rapid and insidious. The eggs are very resistant, may contaminate an entire room, and may be carried by dust inhalation to an uninfected individual. In a recent investigation in Washington viable *Enterobius* eggs were found in the dust on a chandelier. With this in mind the incidence figure of 97 per cent recently found by our department in a children's institution in New Orleans is not at all surprising. Although the treatment of an individual infected with even a single *Enterobius* is of paramount importance, the eradication of *Enterobius* in a family or an institution necessitates the destruction of all eggs present in the home and immediate surrounding areas.

6. Tapeworms. (a) *Taenia saginata* (the beef tapeworm) is by far the most commonly recognized tapeworm in this locality, while *Taenia solium* (the pork tapeworm) is relatively rare. The Taenias will probably not be diagnosed more frequently than at present, because the presence of proglottids in the stools, first observed by patients themselves, is usually the earliest means of diagnosis. Treatment is necessary because of clinical symptoms in both of these species, and in the case of *T. solium* there is the very real danger of the development of a severe cysticercosis due to larval infection of man.

(b) *Hymenolepis nana* (the dwarf tapeworm). There is to be expected an increase in the diagnosis of this infection, which is particularly common in children. It should be treated because of the resulting toxemia, present at times even in light infections.

With the $ZnSO_4$ centrifugal-floatation and the NIH swab technics there arises another point of clinical importance, namely, the efficiency of helminthicidal and protozoicidal drugs. It may be

found that the drugs now being used as curative may only reduce the intensity of infection to a level not detected by the older technics.

An increase in the diagnosis of intestinal parasitic infections is anticipated, this increment being inversely proportional to the intensity of the infection.

This probable increase will provide an etiologic background for many vague and non-specific clinical syndromes.

All cases of intestinal infections with pathogenic parasites should be treated until cured, since the number of parasites detected is in many instances not an index of host burden and since the presence of these pathogens is hazardous both to the individual and to the community.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

February 1. Radio Talk, Orleans Parish Medical Society, 8:45 to 9 a. m., WDSU.
Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Mercy Hospital Staff, 8 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.

February 2. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

6-9. New Orleans Graduate Medical Assembly, Roosevelt Hotel.

February 6. Board of Directors, Orleans Parish Medical Society, 8 p. m.
Pathologic Conference, Hotel Dieu, 8:15 p. m.

February 7. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.

February 8. Radio Talk, Orleans Parish Medical Society, 8:45 to 9 a. m., WDSU.
Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Touro Infirmary Staff, 8 p. m.

February 9. Joint meeting, Orleans Parish Medical Society and New Orleans Graduate Medical Assembly, 8 p. m.

February 13. No meeting, Orleans Parish Medical Society.

February 14. Eye, Ear, Nose and Throat Club, 8 p. m.

February 15. Radio Talk, Orleans Parish Medical Society, 8:45 to 9 a. m., WDSU.
Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Charity Hospital Medical Staff, 8 p. m.

February 16. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

February 17. I. C. R. R. Hospital Staff, 12 noon.
New Orleans Dispensary Staff, 8 p. m.

February 20. Hotel Dieu Staff, 8 p. m.

February 22. Radio Talk, Orleans Parish Medical Society, 8:45 to 9 a. m., WDSU.
Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
French Hospital Staff, 8 p. m.

February 23. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

February 24. L. S. U. Faculty Club, 8 p. m.

February 27. Orleans Parish Medical Society, 8 p. m.

During the month of January, the society held two meetings, the annual Installation Meeting on January 9 and a regular scientific meeting on January 23.

At the Installation Meeting the following program was presented:

Invocation: Reverend T. Russell Nunan, Director Berean Community Center.

This Changing World: Honorable St. Clair Adams.

Address of Retiring President, Dr. Shirley C. Lyons.

Address of President-elect, Dr. Cassius L. Peacock.

Presentation of Past-President's Certificate: Dr. James T. Nix.

Installation of Officers for 1939.

A reception, in charge of the Woman's Auxiliary, followed the meeting.

The following program was presented at the meeting of January 23:

SYMPOSIUM ON RECENT ADVANCES IN SCLERODERMA

The Dermatologic Aspect of Scleroderma.
By.....Dr. James K. Howles.

The Pathologic Physiology of Scleroderma.
By invitation.....Dr. George Burch.

Surgical Consideration of Scleroderma.
By Drs. Alton Ochsner and Michael E. DeBakey.

Annual reports of officers and special and standing committees were read.

The attention of the members is called to the fact that the regular meeting of the society for

Monday, February 13, will be dispensed with because of joint meeting of the society with the New Orleans Graduate Medical Assembly on February 9. It is urged that all members make an earnest effort to attend as many meetings of the assembly as possible.

It is with regret that I report the loss by death of Dr. Frank J. Hartley, December 25, 1938.

The following doctors were elected to membership:

Active: Drs. Kermit Brau, Henry C. Hatcher, and Charles R. Hume.

Intern: Drs. Lawrence W. Burt, Edmond Edelson, William E. Ehlert, Irving M. Essrig, Milton Finn, Hirsh J. Frachtman, Thomas A. Glass, Jr., John A. Holmes, John R. Kight, Albert P. Kimball, Robert A. Knight, Vernal L. Lance, Robert C. Lynch, Marshall L. Michel, Jr., Richard E. C. Miller, Leonard Nelken, William W. Pugh, Jr., William S. Randall, Paul Sonken, Joseph Stamm, and William W. Watkins.

Drs. Alfred Jacoby and Clarence J. Wichser have been reinstated to Active Membership.

NEWS ITEMS

Dr. E. F. Salerno was elected Medical Director of the Orleans Parish School Board to fill the vacancy caused by the death of Dr. John Signorelli.

Dr. Jules Myron Davidson was elected Southern District Deputy Grand Consul of Phi Delta Epsilon National Medical Fraternity at its meeting in Chicago.

Dr. Thomas B. Sellers attended the meeting of the American College of Surgeons, January 18 and 19, in Nashville, Tennessee.

At the recent meeting of the Phi Rho Sigma International Medical Fraternity held in Philadelphia, Dr. Francis L. Jaubert was named historian.

The following officers of the Mercy Hospital were installed at the annual banquet and scientific meeting held January 4: Chairman, Dr. John Irwin; vice-chairman, Dr. Lloyd Hanckes; secretary, Dr. Carroll Gelbke; treasurer, Dr. Percy Phillips and members of the board, Drs. Max Green and Edwin Zander.

Recently elected officers of the French Hospital are Dr. Maurice Lescale, president; Dr. N. J. Tessitore, vice-president; Dr. R. E. Rougelot, secretary-treasurer. The speaker at the annual meeting was Dr. Edward L. King.

Dr. George F. Roeling has been certified by the American Board of Psychiatry and Neurology.

Dr. Leon J. Menville addressed the Rapides Parish Medical Society at Alexandria, January 3.

Drs. Emile Naef and Conrad G. Collins spoke before the Pike County Medical Society in McComb, Mississippi, January 5.

Dr. William Harvey Perkins addressed the Young Women's Christian Association, January 10.

Dr. John A. Lanford read a paper before the Touro Infirmary Auxiliary on January 11.

Dr. Chaille Jamison spoke before the Tulane Medical History Society, January 17.

On January 13-14, Dr. Paul T. Talbot visited the Fourth District at Shreveport in the interest of the membership of the State Society.

Drs. George C. Battalora, Frank Brostrom, and Guy A. Caldwell attended the meeting of the American Orthopedic Association at Memphis, January 17-19.

Dr. Alton Ochsner was guest speaker before the Southern Section meeting of the American Laryngological, Rhinological and Otological Society, Inc., January 14, in New Orleans, and January 17 addressed the Nashville Academy of Medicine.

Drs. James T. Nix and Alton Ochsner were guest speakers of the Southern Sectional meeting of the American College of Surgeons in Nashville, January 18-20.

Dr. Edgar Burns has been appointed Chairman of the Scientific Essays Committee for 1939. Any members desirous of appearing on the program are urged to communicate with Dr. Burns.

Members attending the meeting of the Southern Interurban Clinical Club at Nashville, Tennessee, January 27 and 28, were Drs. John B. Elliott, Charles L. Eshleman, John T. Halsey, Chaille Jamison, Philip H. Jones, Jr., Randolph Lyons, John H. Musser, and Roy H. Turner.

Dr. Charles A. Bahn was awarded the annual Rotary Cup by the Rotary Club for "outstanding civic services" which were his part in reorganizing the Louisiana Society for the Prevention of Blindness and increasing its membership to 400.

TREASURER'S REPORT

Actual book balance 11/30/38	$3,636.28
December credits	$1,885.97
Total credits	$5,522.25
December expenditures	$1,723.31
Actual book balance 12/31/38	$3,798.94

LIBRARIAN'S REPORT

In connection with the December report, a summary of the work of the Library for the year is given for purposes of comparison. The Library has loaned to doctors during December, 743 books and journals, with an additional 713 items to students for overnight use, bringing the total for the month to 1,456. It is interesting to note that, for the year 1938, 10,667 books and journals have been loaned to doctors—approximately one book a month to each active member of the society. This total is 1,390 more than the circulation for 1937, and 2,570 more than the circulation for 1936.

The Library has been increased by 48 volumes during the month, of which 6 were received by gift, 6 from the New Orleans Medical and Surgical Journal, 18 by binding, and 18 by purchase. A notation of new titles of recent date is given herewith. For the year, 727 volumes have been added to the collection, bringing the total number of books in the Library on December 31, to 23,214. The Library receives by subscription and gift 250 medical journals.

The reference service given by members of the staff of the Library to the profession is worthy of particular mention, since this is a field entirely omitted in many medical libraries, doctors being required to gather all their own references. Our Library staff during 1938 has collected material on 132 different subjects, at the particular request of physicians; all of this in addition to calls for specific titles and for needs which could be filled at once by books and by use of the card catalogue.

During the summer the society approved the establishment of an out-of-town membership in the Library for physicians, and the announcement of the plan was sent to members of the Louisiana State Medical Society outside of New Orleans, and many physicians in the larger towns and cities of Mississippi and Alabama. Numerous inquiries were received and full explanation was sent to those interested. Within the first three months, sufficient memberships have been paid to cover completely the initial cost of the service for printing and postage, and we are thus able to report that the society has been at no expense for this extension service. Sufficient supplies are in hand for subsequent calls. In this connection a collection of 7,700 reprints, of dates ranging from 1930 to 1938, has been indexed and filed for immediate use. This file of recent reprints is being enlarged as rapidly as possible and the reprints and duplicate unbound journals will be used for out-of-town loans, thus keeping carriage charges on the package libraries at a minimum and at the same time retaining our bound journal files in the Library for the use of members of the society.

Miss Marshall represented your Library at the annual session of the Medical Library Association for the twelfth consecutive year, in June, and was elected a member of the Executive Committee. These meetings enable her to establish inter-library relations of inestimable value to our own Library.

NEW BOOKS

Eisendrath, D. N.: Urology, 1938.

Boyd, William: Surgical Pathology, 1938.

Watson, Leigh: Hernia, 1938.

Ballenger, W. L.: Diseases of the Nose, Throat and Ear, 1938.

Dooley, M. S.: Intern's Handbook, 1938.

Short, A. R.: Synopsis of Physiology, 1938.

Nelson, Thomas and Sons: Loose-leaf Living Medicine, v. 1-a, 1938.

Henry Phipps Institute: Twenty-seventh Report, 1936-37; 1938.

American Therapeutic Society Transactions, 1937-38; 1938.

Medical Association of the State of Alabama Transactions, 1930; 1930.

Gilbert C. Anderson, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

Louisiana State Medical Society	April 24-26, 1939	Alexandria.
New Orleans Graduate Medical Assembly	February 6-9, 1939	New Orleans.

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge.
East and West Feliciana	First Wednesday in February	Jackson.
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second and fourth Monday of every month	New Orleans.
Pointe Coupee	First Tuesday in March	
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

ALEXANDRIA
HOST TO THE STATE MEDICAL SOCIETY

The Louisiana State Medical Society will hold its sixtieth annual meeting in Alexandria on April 24, 25, and 26, 1939. The largest gathering of physicians in the history of Alexandria and one of the largest state medical meetings is expected.

Alexandria, parish seat of Rapides, is ideally located for a convention city. For years it has been known as the "Heart of Louisiana." It qualifies for this title not only by its geographic location in the center of the state, but also because of the warmth of its welcome to visitors.

Transportation facilities are almost ideal. Alexandria is more easily and more economically reached than any other city in the state. It is the largest railroad center in the state, outside of New Orleans. Sixteen passenger trains arrive and depart in one day. Twenty-five busses come in and go out to almost every point in the state.

Hotel accommodations are excellent. Three large modern hotels and several smaller ones afford accommodations at reasonable rates.

Several important hospitals are located in Alexandria and Pineville: The U. S. Veteran's Facility Hospital has a 500 bed capacity; the Central Louisiana State Hospital has 1200 beds; the Central Louisiana State Charity Hospital, 200 beds; the Baptist Hospital has a 100 bed capacity.

The organizations in concurrent session are the State Pediatric Society, The Gynecological Society, The House of Delegates, and The Woman's Auxiliary to the State Medical Society.

Reservations may be made by writing Dr. L. D. Gremillion, Alexandria, Louisiana, or simply writing the hotel.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

Almost by the time that the Journal reaches its readers, the New Orleans Graduate Medical Assembly will have started February sixth; nevertheless, to those members of the State Society who have not as yet made up their minds to attend this outstanding gathering of medical speakers, we urge their attendance. A group of lecturers from the large centers of the United States and Canada will tell what they know about their particular specialties. They have been asked to make these talks, clinics and demonstrations simple, concise and practical. They have been requested not to dilate upon some abstruse phase of their specialties, but to bring to every listener their experience in every day disorders. As they will do this, it is obvious that the talks will be of value not only to the man who is specializing but to the man in general practice; even the specialist in other fields can learn about the more important features of another specialty.

In addition to the scientific program will be the get-together luncheons every day. There will be a smoker, and there will be considerable opportunity to enjoy the social aspects of the medical meeting.

ST. TAMMANY PARISH MEDICAL SOCIETY

The St. Tammany Parish Medical Society met in Slidell on December 8, 1938, with the following members present: Drs. F. R. Singleton, J. K. Griffith, R. C. Young, H. E. Gautreaux, and Dr. W. D. Simmons as guest. In the absence of Dr. F. F. Young, Sr., president, Dr. Singleton served as chairman. Minutes of last meeting were read and approved.

Under the head of new business, collection of dues for state and parish medical societies were in order. The following officers were elected to serve for the year 1939: Drs. F. R. Singleton, president; R. C. Young, vice-president; H. E. Gautreaux, secretary-treasurer; R. C. Young, delegate; F. F. Young, Sr., alternate.

A motion introduced by Dr. J. K. Griffith, seconded by Dr. R. C. Young was as follows (the Chair at this time appointed Drs. H. E. Gautreaux and R. C. Young to draw up the following resolution):

"*Resolved*, That the State Society take notice of the fact of the condition of the rural physician in the state due to the lack of work and inability of many people to pay for medical services. It is well known that the rural physician has rendered faithful service and has been to the utmost stalwart and devoted to his professional duties, at a sacrifice to his personal welfare. Times come into the lives of everyone of us when sooner or later we must seek the same medical advice we have always given. It is a fact that hospital dues and fees for service will be, and always have been, a great financial strain to the rural physician.

"*Resolved*, That the St. Tammany Parish Medical Society instruct its delegate, by this resolution, to invoke the aid of all parish societies and the State Association for the following: That a private ward or group of rooms be set aside in all state hospitals for the immediate family of the physician and his dependents, where they may receive medical or surgical aid as needed."

H. E. Gautreaux, M. D., Sec.

DESOTO PARISH MEDICAL SOCIETY

The DeSoto Parish Medical Society met at the Mansfield Sanitarium on Tuesday evening, December 13, in business session. A delicious dinner was served by the Sanitarium, after which the society elected officers for the ensuing year, with the following results: Drs. W. B. Hewitt, president; R. P. Thaxton, vice-president; R. A. Tharp, secretary-treasurer and delegate; W. G. Jones, alternate.

R. A. Tharp, M. D., Sec.

MOREHOUSE PARISH MEDICAL SOCIETY

The regular meeting of the Morehouse Parish Medical Society was held at the Morehouse Country Club in Bastrop on Tuesday, December 13. Officers elected for 1939 were as follows: Drs. F. B. Ogden, president; J. L. Rawls, vice-president; C. J. Raney, secretary-treasurer; W. A. Rodgers, delegate; J. L. Rawls, alternate.

Following the election, a delicious chicken barbecue supper was served to the members present, including Drs. Rodgers, Ogden, Owens, Rawls, Raney, Sims, Patterson, Jones and Leavell. Dr. Paul Herron, who recently moved from Monroe to Oak Ridge, was a guest at the meeting and was accepted as a member of the society.

C. J. Raney, M. D., Sec.

JEFFERSON DAVIS PARISH MEDICAL SOCIETY

At a called meeting of the society held in Jennings, December 8, 1938, the following officers were elected for the coming year: Drs. Morgan Smith, president; John G. McClure, vice-president; L. E. Shirley, secretary-treasurer; John G. McClure, delegate; R. S. Kramer, alternate.

On motion of Dr. F. W. Harrell, duly seconded by Dr. John G. McClure, the following resolution was unanimously adopted.

"*Whereas*, In the past the Doctors of Medicine in the Parish of Jefferson Davis, State of Louisiana, have given freely of their time and talent in serving the needs of the poor, without thought of recompense, and

"*Whereas*, There has come into existence certain governmental agencies, more specifically the Public Welfare Administration, created by the political government and supported by taxation of all the people, whose duty is to care for the sick and indigent, and

"*Whereas*, These agencies have found ways to, and do, recompense all classes of men except the Doctors of Medicine for services or goods rendered the members of their rolls, and

"*Whereas*, We believe that we are being discriminated against and as a matter of right and justice:

"Now, therefore, be it *Resolved*, By the members of the Jefferson Davis Parish Medical Society, in legal session assembled, on this the eighth day of December, 1938, in the City of Jennings, Louisiana, that from and after this date we will furnish no certificate of examination to welfare patients, or applicants therefor, except for cash, or on order from the welfare office accepting liability."

L. E. Shirley, M. D., Sec.

LAFAYETTE PARISH MEDICAL SOCIETY
OFFICERS, 1939

President: Dr. Robert Kapsinow, Lafayette.
Vice-President: Dr. L. B. Long, Lafayette.
Secretary-Treasurer: Dr. William Melancon, Carencro.
Delegate: Dr. Louis Prejean, Scott.
Alternate: Dr. L. O. Clark, Lafayette.

AVOYELLES PARISH MEDICAL SOCIETY
OFFICERS, 1939

President: Dr. L. W. Holloman, Marksville.
Vice-President: Dr. J. C. Goldner, Marksville.
Secretary-Treasurer: Dr. K. A. Roy, Mansura.
Delegate: Dr. S. J. Couvillon, Moreauville.
Alternate: Dr. R. G. Ducote, Bordelonville.

CALCASIEU PARISH MEDICAL SOCIETY
OFFICERS, 1939

President: Dr. W. A. K. Seale, Sulphur.
Vice-President: Dr. C. O. Frederick, Lake Charles.
Secretary-Treasurer: Dr. Eleanor Cook, Lake Charles.
Delegates: Drs. S. F. Hatchette and Walter Moss, Lake Charles.
Alternates: Drs. Eleanor Cook and I. M. Lamansky, Lake Charles.

OUACHITA PARISH MEDICAL SOCIETY
OFFICERS, 1939

President: Dr. John Pracher, Monroe.
Vice-President: Dr. F. P. Rizzo, Monroe.
Secretary-Treasurer: Dr. L. L. Titche, Monroe.
Delegates: Drs. F. C. Bennett, G. W. Wright, A. L. Peters, all of Monroe.

WASHINGTON PARISH MEDICAL SOCIETY
OFFICERS, 1939

President: Dr. J. S. Desporte, Bogalusa.
Vice-President: Dr. W. S. Harrell, Bogalusa.
Secretary-Treasurer: Dr. B. Freedman, Franklinton.
Delegate: Dr. R. R. Ward, Bogalusa.
Alternate: Dr. J. S. Desporte, Bogalusa.

FIFTH DISTRICT MEDICAL SOCIETY
OFFICERS, 1939

President: Dr. J. Q. Graves, Monroe.
Vice-President: Dr. Joe Whitaker, St. Joseph.
Second Vice-President: Dr. M. W. Hunter, Monroe.
Secretary-Treasurer: Dr. W. M. Johnson, Monroe.

NEWS ITEMS

Dr. Emile Naef, Assistant Professor, Department of Pediatrics, Tulane University and Dr. Conrad Collins, Assistant Professor, Department of Gynecology, Tulane University were guests of the Pike County Medical Society in McComb, Mississippi on January fifth. Dr. Naef presented a

paper on "First Infection Type Tuberculosis in Childhood" and Dr. Collins presented a paper on "Causes and Treatment of Vaginitis."

Drs. J. A. O'Hara, C. L. Peacock and P. T. Talbot attended the meeting of the St. Tammany Parish Medical Society on January 19.

The appointment of J. Thornwell Witherspoon, M. D., formerly of Indianapolis and New Orleans, to be editor of Modern Medicine, national medical journal published in Minneapolis, was announced by the publishers in January.

The Faculty of the Harvard School of Public Health offers a short course of lectures, clinics and demonstrations on the virus and rickettsial diseases during the week of June 12-17, 1939. There is a fee of twenty-five dollars. Further information may be obtained from Dr. Cecil K. Drinker, 55 Shattuck St., Boston, Mass.

THE SOUTHEASTERN SURGICAL CONGRESS

The Southeastern Surgical Congress announces the Tenth Anniversary Post-Graduate Surgical Assembly to be held in Atlanta, March 6-8, 1939, at the Biltmore Hotel.

Amongst others who will appear on the program are Drs. Mims Gage and Howard Mahorner, of New Orleans; W. Wayne Babcock, of Philadelphia; T. Z. Cason, of Jacksonville, Fla.; George Crile, of Cleveland; W. J. Mixter, of Boston; Frank Dickson, of Kansas City; Morris Fishbein, of Chicago; Mont Reid, of Cincinnati.

CONGRESS ON OBSTETRICS AND GYNECOLOGY

The American Congress on Obstetrics and Gynecology will be held in Cleveland, Ohio, September 11-15, 1939, sponsored by the American Committee on Maternal Welfare, Inc. Participating in the meeting are a very large number of national and local societies interested in gynecology and obstetrics and amongst which is the New Orleans Gynecological and Obstetrical Society. The preliminary program shows that there will be held medical sections, round tables and sessions that have to do with the legal, sociologic and ethical aspects of maternity.

Full information concerning this meeting may be obtained from the central office, 650 Rush Street, Chicago, Illinois.

FREE FILMS

The American Medical Association has a number of motion picture films for loan, among which are several on physical therapy. The borrower is expected to pay the expense both ways and is expected to be careful when running them.

Dr. Thomas G. Hull, Director, Scientific Exhibit, has charge of the distribution.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral, clinical and pathological examinations for all candidates, Part II Examinations (Groups A and B), will be conducted by the entire Board, meeting in St. Louis, Missouri, on May 15 and 16, 1939, immediately prior to the annual meeting of the American Medical Association. Notice of time and place of these examinations will be forwarded to all candidates well in advance of the examination dates.

SPEAKER'S SERVICE

The Public Relations Bureau of the Medical Society of the State of New York in Bulletin No. 23, has an excellent outline for a talk on pneumonia. This outline is so arranged that it may be used either for a group of physicians or for a group of lay individuals. With it there is also a bulletin by Dr. Haven Emerson entitled "Signs of the Times in Public Health." Either of these two bulletins may be obtained from the editorial offices of the Journal or from the above office of the society in New York City. They have also issued a reprint entitled "The Doctor at the Crossroads" written by Dr. Nathan B. van Etten. Single copies of this reprint are available at five cents each; fifty may be obtained for one dollar.

INFECTIOUS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the state, which contain the following summarized information: For the week ending December 17, the fiftieth week in the year, syphilis led all reported diseases, as is the custom. This week there were 107 cases, and the following diseases appeared in numbers greater than ten: 68 cases of pneumonia, 38 of pulmonary tuberculosis, 32 of diphtheria, 29 of cancer, 26 of measles, 25 of scarlet fever, 16 of gonorrhea, 13 of typhoid fever and 12 of malaria. Of the unusual diseases, a case of smallpox was reported from Red River Parish this week. It is rather remarkable that of the thirteen cases of typhoid fever listed, no one single parish reported more than one case. For the week ending December 24, there are listed 100 cases of syphilis, 49 of pneumonia, 47 of pulmonary tuberculosis, 40 of cancer, 36 of measles, 28 of gonorrhea, 22 of scarlet fever, 16 of whooping cough and 10 each of influenza and malaria. Another case of smallpox was found this week in Bienville Parish. Iberville Parish listed a case of poliomyelitis and Orleans one of tularemia. The last and final week of the year found syphilis still leading all reported diseases, but with comparatively small incidence, 73 cases being reported this week, probably the influence of Christmas. Next came 52 cases of pneumonia, 35 of cancer, 29 of measles, 23 of pulmonary tuberculosis, 18 of gonorrhea, 13 of diphtheria and 10 of influenza. A case of typhus

fever was reported from Ascension Parish; one of undulant fever from Caddo, and one of paratyphoid fever from Orleans. The first week in the new year found the ubiquitous syphilis had jumped up more closely to the usual figure, 115 cases being discovered this particular week. There was evidently a mild epidemic of measles, as 63 cases were listed for the week of January 7, exceeding by far the usual number discovered at this time. Other diseases in double figures were as follows: 50 cases of pneumonia, 22 of scarlet fever, 17 of cancer, 11 of diphtheria, and 10 each of pulmonary tuberculosis and typhoid fever. Of the unusual diseases, undulant fever was discovered in Jefferson Parish; smallpox, one case, in Ouachita, and one case of paratyphoid fever in Orleans.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending December 10, there occurred in the City of New Orleans 170 deaths, which were divided 107 white and 63 negro. This compared very well with the previous week at which time 212 New Orleans' citizens died. The deaths in infants for this period of time were 18 in number. For the next week, which came to a close December 17, the total deaths had increased 13 in number, in all 183, divided 119 in the white and 64 in the negro race. Of children under one year of age, 14 white and two negro expired. For the week which came to a close the day before Christmas, there was a slight increase in the number of deaths over the previous week; this time the negro race was responsible for the greater part of the increase, there being 75 of this race to die. One hundred and thirteen white people died, a total for the two of 188. There were 19 deaths in children under one year of age. The last week in the year came to a happy close because there were 46 less deaths than in the previous week and fewer than in any one week for some time. Of the 142 New Orleanians dying in Christmas week, 81 were members of the white race and 61 were members of the negro race. Partial responsibility for the small number of deaths is due to the fact that there were only eight deaths in little babies.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. Frederick G. Ellis, Shreveport.

President-elect—Mrs. S. M. Blackshear, New Orleans.

First Vice-President—Mrs. C. A. Martin, Welsh.

Second Vice-President—Mrs. A. G. McHenry, Monroe.

Third Vice-President—Mrs. D. C. McBride, Alexandria.

Fourth Vice-President—Mrs. A. F. Hebert, New Orleans.

Treasurer—Mrs. O. C. Rigby, Shreveport.

Recording Secretary—Mrs. D. T. Milam, Monroe.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Corresponding Secretary—Mrs. C. B. Erickson, Shreveport.

Historian—Mrs. W. P. Gardiner, New Orleans.

YEAR BOOK

The Year Book, combining the administrations of two Auxiliary presidents, Mrs. George Feldner, 1937-38 and Mrs. Frederick G. Ellis, 1938-39, is off the press. It is beautifully printed and meticulously planned to give information and inspiration.

The roll taken from the treasurer's record in 1938, shows Louisiana had a total of 463 auxiliary members, allocated as follows: Caddo, 90; Jefferson Davis, 9; Iberville, 9; Orleans, 244; Ouachita, 31; Rapides, 27; St. Mary, 8; St. Tammany, 8; Terrebonne, 4; Tri-Parish, 16; Washington, 8; members at large, 9.

Let me quote you the message in the Year Book from the President of the Louisiana State Medical Society.

THE PRESIDENT'S MESSAGE

Greetings and congratulations!

In anticipating the service to be rendered by the Louisiana State Medical Society during the current year, it is most heartening to have at our command such an asset as the Woman's Auxiliary, confident as I am that it will live up to its previous traditions, both in loyalty to our cause and in constructive contributions to our program. With the fostering of such helpful cooperation, I have the very definite conviction that we shall be able to build progressively and stably.

Of paramont importance to the greater success of the State Medical Society, we need your assistance in:

Securing prompt, complete and accurate birth certificates.

Reducing infant mortality rates, through education.

Encouraging universal immunization of every pre-school child against diphtheria, and vaccination of every citizen of the state against smallpox and typhoid fever.

Stimulating interest in the enforcement of sanitary regulations governing milk, meat, water and other foods, and in the registration of all drugs.

Promoting civic improvements and installing municipal utilities.

Soliciting membership in the State Medical Society of all eligible doctors.

Cooperating with parish and district medical societies, and in disseminating public health information.

You may count on my fullest cooperation—personal and official—to the end that the Woman's

Auxiliary may accomplish jointly with the State Medical Society, a program of helpfulness to humanity.

Yours very truly,
J. A. O'Hara, M. D.,
President.

Mrs. R. L. Simmons of Shreveport, Chairman of Printing and Supply, edited the Year Book.

ORGANIZATION

Mrs. Roy Carl Young, Covington, Chairman of Organization, and Mrs. R. B. Wallace, Alexandria, Councilor for the Eighth District, report two new groups.

AVOYELLES PARISH

A Woman's Auxiliary to the Avoyelles Parish Medical Society was organized in Marksville, December 17, when a meeting was held at the home of Mrs. W. F. Couvillion, with Mrs. L. W. Holloman acting as chairman. Election of officers resulted as follows: Mrs. Kirby A. Roy, Mansura, president; Mrs. W. F. Couvillion, Marksville, president-elect; Mrs. L. W. Holloman, Marksville, secretary; Mrs. A. B. Cairns, Bunkie, treasurer. The auxiliary will meet in January at the home of Mrs. Roy at Mansura when various committees will be named and plans for the ensuing year's activities will be discussed.

ST. LANDRY PARISH

Organization of the Woman's Auxiliary to the St. Landry Parish Medical Society was perfected at a meeting in Opelousas, January 11, under the direction of Mrs. Roy Carl Young of Covington. Mrs. F. Creighton Shute of Opelousas was elected president. Other officers elected were: Mrs. Charles Lewis, Eunice, vice-president; Mrs. Gerald Bertinot, Sunset, recording secretary; Mrs. L. Lazaro, Jr., Opelousas, treasurer; Mrs. William C. Littell, Opelousas, corresponding secretary; and Mrs. Albert Pavy, Opelousas, parliamentarian.

Mrs. Young outlined the aims and objects of the auxiliary. The local unit was organized with the consent of the medical society and a member of the latter organization will be appointed to serve as counsel to the auxiliary.

The following committee was appointed to draw up a constitution and by-laws for presentation at the next meeting: Mesdames Oscar Bienvenu, Albert Pavy, Harry Jenkins, George Beridon and George Azar.

Those present at the organization meeting were Mesdames Lionel Bienvenu, Oscar Bienvenu, Franklin Boyd, William Littell, Sylvan Beer Wolff, S. J. Rozas, L. Lazaro, Jr., F. Creighton Shute, L. Lazaro, Sr., Albert Pavy, R. M. Littell and B. A. Littell, Opelousas; Charles Lewis, Rodney Reed, Harry Jenkins and J. J. Stagg, Eunice; George Azar, Washington; Halile Hawkins, Palmetto; A. L. Brinkhaus, Gerald Bertinot and J. L. Prejean, Sunset.

JEFFERSON DAVIS PARISH

The January meeting of the Woman's Auxiliary to the Jefferson Davis Parish Medical Society was held at the home of Mrs. F. W. Harrell.

The 1938 Christmas Tuberculosis Seals were sold by the auxiliary and the result of the sale was reported to be $227.70.

Mrs. L. E. Shirley, in charge of the program, read a splendid article on "Cancer Control" and also a humorous reading; another interesting paper on "Cancer" was given by Mrs. E. V. LaCour.

Mrs. John M. Whitney,
Press and Publicity Chairman.

ORLEANS PARISH

Mrs. C. Grenes Cole was installed as president for 1939 and Mrs. Aynaud F. Hebert elected to the presidency of the Woman's Auxiliary of the Orleans Parish Medical Society for 1940 at its annual meeting. Mrs. Jules M. Davidson was retiring president.

As its inaugural project for the year, the group voted to undertake the establishment of a fund for the care of indigent widows of physicians. The former commemoration fund was earmarked for this new purpose as was one dollar from the annual dues of each member. One widow of a New Orleans' physician, former member of the Orleans Parish Medical Society, has already applied for aid, been investigated by the committee in charge and is presently receiving a monthly check from the fund as provided. The work of caring for indigent widows of physicians has been outlined by the auxiliary to the American Medical Association, and it is due to the zeal and interest of retiring president, Mrs. Jules Myron Davidson, that the work has been put into operation so quickly and efficiently. Mrs. Davidson has been appointed chairman of the fund for the present year.

Other officers named were Mrs. Roy B. Harrison, first vice-president; Mrs. Cassius L. Peacock, second vice-president; Mrs. Jonas Rosenthal, third vice-president; Mrs. John T. Sanders, fourth vice-president; Mrs. Carroll F. Gelbke, recording secretary; Mrs. Paul G. Lacroix, treasurer; Mrs. William Kohlman, corresponding secretary; Mrs. James W. Warren, parliamentarian; Mrs. Michael E. De Bakey, historian; and Mrs. Edwin R. Guidry, publicity chairman.

The following committee chairmen were appointed by Mrs. Cole: Program, Mrs. Roy B. Harrison; hostesses, Mrs. Joseph A. La Nasa; membership, Mrs. Aynaud F. Hebet; registration, Mrs. Jonas Rosenthal; notification, Mrs. Adoph Jacobs; telephone, Mrs. Edwin A. Socola; courtesy, Mrs. George Taquino; motor corps, Mrs. Cassius L. Pea-

cock; revision, Mrs. Roy B. Harrison; periodic health, Mrs. Herman B. Gessner; tuberculosis prevention, Mrs. H. Theodore Simon; Red Cross, Mrs. Frank J. Chalaron; social hygiene, Mrs. George D. Feldner; safety, Mrs. S. M. Blackshear; clothes, Mrs. Leon J. Menville; samples, Mrs. Joseph E. Brierre; ways and means, Mrs. W. Rogers Brewster; public relations, Mrs. S. Chaille Jamison; contact, Mrs. J. Kelly Stone, and commemoration, Mrs. Jules M. Davidson.

Mrs. Edwin R. Guidry,
Press and Publicity Chairman.

OUACHITA PARISH

Camellias of pronounced beauty overflowing from a flaring crystal bowl, formed the central decor for the luncheon table at the Lotus club on Wednesday when members of the Auxiliary to the Ouachita Parish Medical Society enjoyed their regular January social meeting.

Mrs. A. L. Peters, Mrs. Scott Hamilton and Mrs. Henson Coon, extended the courtesies at this time.

Two excellent papers, "Women In Science and Medicine," by Mrs. C. P. Gray and "The Truth about Candy," by Mrs. R. W. O'Donnell, featured the program hour.

It was announced at this time that two books, "Short History of Medicine," by Charles Singer, and "Evolution of Medicine," by Sir William Osler, had been purchased and presented to the Monroe Public library in memory of the late Mrs. Jessie Sadler, an outstanding member of the auxiliary whose husband, the late Dr. Richard Sadler, was a prominent member of the medical profession of Monroe.

As customary each year at Christmas time, members of the Auxiliary to the Ouachita Parish Medical Society entertained their husbands on a lavish scale at the Lotus club.

Mrs. R. W. O'Donnell,
Press and Publicity Chairman.

JOINT MEETING

The Woman's Auxiliary of Washington and St. Tammany parishes united in a social meeting to celebrate their first anniversary. Mrs. Roy Carl Young entertained the two groups at tea in her home in Covington. The meeting fostered the fellowship and goodwill that prevails in those neighboring parishes.

Respectfully submitted,
Mrs. Robert T. Lucas,
Press and Publicity Chairman.

BOOK REVIEWS

A Biological Approach to the Problem of Abnormal Behavior: By Milton Harrington, M. D. Lancaster, Pa., Science Press Printing Co., 1938. Pp. 459. Price $4.00.

The writer attempts to emphasize mechanistic theories as a basis for understanding the function of the human mind. The introductory chapters are interesting for their viewpoint; not only Freudian psychology, but even the practicality and inherent value of Meyerian teachings are questioned.

This first volume, of a proposed two volume work, is divided into chapters dealing with psychophysiology, and psychopathology. The development of his thesis rests on the work done on simple stimulus responses, simple and elaborated reflex action. He emphasizes the concept of anticipation in the role of attaining a goal. In the chapters on physiology, he deals with physiologic mechanisms, and attempts to show how pathologic changes occur when the former are disturbed. He looks upon the personality as a machine, and mental disturbances as due to some flaw of the machine. He points out five methods of making an adjustment and his psychopathology is in the disturbance of one or more of these.

The author emphasizes the mechanistic concept of behavior, while himself realizing that as yet it has not entirely satisfied our needs for understanding or treating mental disorders.

L. A. GOLDEN, M. D.

Big Fleas Have Little Fleas, or Who's Who among the Protozoa: By Robert Hegner. Baltimore, The Williams and Wilkins Co., 1938. Pp. 285, illus. Price $3.00.

In this volume by Professor Hegner, who has here set down in the printed pages the subject matter of his Messenger Lectures at Cornell University, 1937, an attempt is made to popularize the microscopic group of organisms technically known as the Protozoa. Hence the caption "Big fleas have little fleas" (an entomological text) may, with a big stretch of writer's license, be used to catch the popular reader's ear and eye.

The book contains three types of subject matter: (1) light, fluffy nothings, which could well become popular at pink teas; (2) scientific facts, and (3) travel stories based on Professor Hegner's tropical journeys. The three are inextricably entangled, perhaps with the hoped-for goal of acquainting the unsuspecting fiction reader with an important and entrancing field of microscopic science after he had dipped ever so lightly into the opera bouffe. It is probably not overstating the case to add that the illustrations are better than the text. Most of

the strictly scientific line and halftone pictures are those which have appeared in earlier research contributions by the author. On the other hand, the cartoons and fragments of comic strips, which appear abundantly throughout the volume, are both a delight and a real contribution to the popularization of a scientific, and frequently bone-dry, subject. The real value of this book lies in these "warpings of the imagination" to bring home numerous facts by way of illustration. A few of these which particularly pleased the reviewer are the following:

"To the biologist only the protozoa are immortal, but who wants to be immortal if he loses thereby his identity?" (p. 20, fig. 12).

"The birth of quintuplets would represent abysmal failure in the suctorial family." (p. 63, fig. 32).

"Millions of ciliates are digested, absorbed and assimilated by cattle daily so that we may have well-flavored steaks to eat." (p. 76, fig. 38).

"Fortunately for young love, the protozoa that live in the human mouth are harmless." (p. 121, fig. 61).

"A phagocyte traffic cop captures a malaria parasite trying to steal a ride in a red blood corpuscle." (p. 218, fig. 108).

By way of serious criticism, Professor Hegner should have known better than to confuse "hereditary" with "congenital," when discussing transmission of micro-organisms (p. 71). Likewise, his diagram on page 119, referring Plasmodium vivax primarily to the brain, Leishmania donovani to the liver and Endamoeba histolytica to the transverse colon, needs revising.

By and large, this book should relieve, rather than initiate headaches.

ERNEST CARROLL FAUST, Ph. D.

A Guide to Human Parasitology for Medical Practitioners: By D. B. Blacklock, M. D. (Edin.), D. P. H. (London), D. T. M. (Liver.), and T. Southwell, D. Sc., Ph. D., A. R. C. Sc., F. Z. S., F. R. S. E. Baltimore, William Wood and Co., 1938. Pp. 259, 2 colored plates. Price $4.00.

This book was originally designed as an introduction to medical parasitology for the practicing physician and the appearance of the third edition within seven years indicates that it has met a demand.

After a brief, introductory chapter, in which the physician is informed that "any person can attain a very considerable degree of proficiency in the diagnosis of parasites, without having to wait for infected patients to present themselves for examination," the authors present, in turn, information on the microscope and its use, the filming and preparation of blood and its examination for parasitic organisms, the interpretations of abnormal blood cells and serum with respect to parasites, and the examination of feces for Protozoa. Then the term "parasitology" is defined and the significance of zoological nomenclature is briefly pointed out. The groups of parasites considered are the spirochetes, the amebae, the flagellates of the bowel and of the hematopoietic system, the Sporozoa (including the malaria plasmodia), Balantidium coli, the tapeworms, flukes, the several important roundworms, and the phenomena of myiasis.

There are numerous, well-executed illustrations, tables and charts on the morphology, life cycles, geographic distribution, the stages of the parasite infective for man and the vehicles of human infection, the tissues of man parasitized by the parasites, and diagnostic tables for their recognition. There is no information concerning symptomatology or treatment. A brief list of reference books for consultation and a good subject index conclude the volume. The information presented is relatively free of personal prejudice. The book is beautifully printed and is attractively bound.

ERNEST CARROLL FAUST, Ph. D.

A Historical Chronology of Tuberculosis: By Richard M. Burke, M. D. Springfield, Ill., Charles C. Thomas, 1938. Pp. 84. Price $1.50.

This small volume presents in outline form the story of tuberculosis from the time of first recorded history to the present day. Not intended for casual reading, it offers an excellent beginning for anyone interested in tracing the evolution of various phases in man's long struggle against his ancient enemy. An appended graphic outline of the development of knowledge of tuberculosis makes an invaluable addition to the text.

SYDNEY JACOBS, M. D.

Cancer, with Special Reference to Cancer of the Breast: By R. J. Behan, M. D., Dr. Med. (Berlin), F. A. C. S. St. Louis, C. V. Mosby Co., 1938. Pp. 844. Price $10.00.

"Cancer" by Behan is an almost encyclopedic compilation of the literature on carcinoma of the breast, for a complete understanding of which the author thought it necessary to add considerable data on the experimental production and reaction of neoplastic tissue in the laboratory.

Behan attaches more etiologic significance to heredity than the majority of workers in this field do at the present time, going so far as to caution against the marriage of two individuals with a family history of malignant disease.

Although B. J. Lee found fifty per cent of the patients with a "bleeding nipple" showed malignant changes in the breast, Behan suggests that some of these patients may be treated expectantly. Again, many clinicians feel that supraclavicular dissection in radical mammectomy is futile, because, in the great majority of instances, if metastasis from carcinoma of the breast is found in the supraclavicular area, the disease has already spread to regions inaccessible to surgery. For the

same reason, most clinicians are not in agreement with the use of radon seeds in the periphery of the operative field at the time of radical mastectomy as advocated by Behan.

The dosage of radiation in carcinoma of the breast used by Behan is lower than that used in some large clinics (notably the Memorial Hospital in New York City) and his lack of enthusiasm for preoperative radiation of carcinoma of the breast fails to take into consideration the fact that there are certain groups of patients in whom it is definitely beneficial, i. e., where the neoplasm is so large that radical removal may be technically difficult or impossible, intensive preoperative irradiation will shrink the tumor and its axillary extension to the point where its removal is technically much less difficult; again, in women below 40 years of age radiation castration increases both the life expectancy of every patient as well as her chance for a five year cure; in the same way, in patients with grade III or IV tumors, preoperative radiation seems to be advantageous to the patient. Preoperative irradiation undoubtedly increases the loss of blood as well as the technical difficulty of the operative removal.

Behan wisely points out the noxious effect of lactation or subsequent pregnancy in a patient with carcinoma of the breast. His emphasis upon the treatment of the patient as a whole with specific measures to correct any anemia, cachexia, or psychologic trauma which may be present as well as the carcinoma of the breast is undoubtedly wise. The book will be of value to the physician particularly interested in carcinoma of the breast.

DAVID WOOLFOLK BARROW, M. D.

Dr. Betterman's Diary for the Years 1863, 1873, 1893, 1909, 1910: Edited by Charles Elton Blanchard, M. D. Youngstown, Ohio, Medical Success Press, 1937. Pp. 278. Price $3.00.

This is an interesting and entertaining series of entries by a shrewd, kindly, humorous and resourceful country practitioner of the old school, which is well worth perusing in one's spare hours. There are several references to the Civil War period which are of interest. Human nature and the basic problems of medical practice have changed but little since they were so keenly observed and commented upon in the quaint, amusing and interesting style of Dr. Betterman.

B. B. WEINSTEIN, M. D.

The Pneumonias: By H. A. Reimann, M. D. Philadelphia, W. B. Saunders Co., 1938. Pp. 381, with 111 illus. Price $5.50.

The author has brought together much diversified knowledge pertaining to pneumonia. This volume is a critical review of the pertinent literature on the subject as well as a splendid teaching text based on personal experience.

In a short preamble before the main text, the author gives a brief outline of the history of pneumonia and a comprehensive classification. He has found difficulty in preparing a classification of pneumonia which will satisfy clinicians, bacteriologists, pathologists and epidemiologists. Emphasis is given to the relative unimportance of a purely anatomic or clinical classification. The author feels that it is of no great moment whether the pneumonia assumes the clinical lobar form or not, except that the prognosis is better if the lesion is localized, but of great importance to know whether the pneumonia is caused, for example, by Type I pneumococcus, or by hemolytic streptococcus, for in both instances specific therapy is necessary, regardless of the anatomic or clinical form the pulmonary infection assumes. His firm belief is that it is desirable to adopt a method of etiologic classification rather than one based on clinical or anatomic considerations, if progress is to be made in prevention and treatment.

The first section of Part I deals with typical, or lobar, pneumococcus pneumonia. Each aspect of the disease is treated in a thorough discussion, the chapters dealing with pathology, symptomatology and pathogenesis being the best. The problem of serum therapy is thoroughly discussed. Regarding the use of drugs, the author feels that sulfanilamide is not to be advised at present. He expresses the hope that in the future some sulfamide compound will be perfected which will be more toxic for the pneumococcus and less so for the patient.

In the second section there is a discussion of atypical pneumonias, that is to say, those pneumonias which differ clinically from lobar pneumonia. They are divided according to etiology. They are regarded as primary pneumonias and differ from those discussed in Section 1 only in their clinical and pathologic aspects.

Part II is concerned with pneumonia as a specific form, occurring as a part of a systemic disease. The infecting agent for both the primary disease and the pneumonitis is the same. Here again the discussion is divided by etiologic considerations.

In Part III the author discusses those forms of pneumonia secondary to acute and chronic disease, mechanical causes, shock, senility and like factors. In this group the exact bacteriologic-etiologic diagnosis by available methods is impossible.

A few special forms of pneumonia, not caused by infectious agents, but characteristic according to their etiologies, are listed in Part IV.

The material in this volume is presented in a usable form and concise manner. The bibliography is a valuable aid in collateral reading. It is a book which may be profitably read by both general practitioner and internist.

DONALD F. GOWE, M. D.

Human Pathology: By Howard T. Karsner, M. D., with an introduction by Simon Flexner, M. D. Philadelphia, J. B. Lippincott Co., 1938. Pp. 1013. Price $10.00.

This is the fifth edition of a book which has been popular with the Sophomore medical students. All chapters of the book have been revised with several new illustrations replacing the older pictures. Over two hundred new references have been added and older references omitted. The text well covers the essentials of general pathology and will undoubtedly continue to be popular with the medical students.

JOSEPH R. KRIZ, M. D.

Urology: By Daniel N. Eisendrath, M. D., and Harry C. Rolnick, M. D. Philadelphia, J. B. Lippincott Co., 1938. Pp. 1061. Price $10.00.

This book is more suited to the practitioner than to the medical student. The subject matter is presented in too much detail for student use.

The divisions of the book are not well connected, necessitating constant reference to other sections of the volume, and the chapter on external lesions should be revised; otherwise the book is well written. The section on physiology is commendable, presenting the new advancements which have taken place within the past few years. The popularity of the volume is attested by the fact that it has reached its fourth edition.

FRANK L. RAMSAY, M. D.

Aids to Bacteriology: By William Partridge, F. I. C. Baltimore, William Wood & Co., 1938. Pp. 300. Price $1.50.

This small volume has now come into its sixth edition revised by H. Scott Wilson. The classification of the Society of American Bacteriologists in a slightly modified form is now used. The book should be valuable to students as an aid in bacteriology.

JOSEPH ZISKIND, M. D.

Pathological Technique: By Frank Burr Mallory, A. M., M. D., S. D. Philadelphia, W. B. Saunders Co., 1938. Pp. 434. Price $4.50.

Dr. Mallory has written a modern presentation of accepted pathologic technic. He has selected those formulas which were found of value and has intended the book for pathologists, students interested in pathology and technicians trained in that line of work. This volume would be a valuable asset to any pathologic library.

JOSEPH ZISKIND, M. D.

Fractures of the Jaws: By Robert H. Ivy, M. D., D. D. S., F. A. C. S., and Lawrence Curtis, A. B., M. D., D. D. S., F. A. C. S. Philadelphia, Lea & Febiger, 1938. Pp. 192. Price $4.50.

In this compact second edition of "Fractures of the Jaws" the authors offer a wealth of experience accumulated over a period of many years. They have graphically shown how virtually all problems arising from fractures of the facial bones may be treated by simple methods applied to basic principles.

This book is adequately illustrated, and its value is further enhanced by the development of the chapter which is devoted to roentgenologic aspects and intra-oral technic. It further serves to emphasize the importance of proper management in the care of fractures of the bones of the face and to stress some of the unfortunate sequelae arising from mismanagement. The book should be of interest to the general surgeon as well as to the specialist in maxillo-facial surgery. It is a valuable ready reference work.

NEAL OWENS, M. D.

Surgical Pathology: By William Boyd. Philadelphia, W. B. Saunders Co., 1938. Pp. 886. Price $10.00.

This excellent text of surgical pathology has undergone a fourth revision. Many new subjects have been added which are of especial interest such as lymphogranuloma inguinale, Hashimoto's disease, and the rare ovarian tumors.

The book is highly recommended to students and surgeons.

JOSEPH ZISKIND, M. D.

Medicine in the Outpatient Department: By Winthrop Wetherbee, Jr., M. D. New York, Paul B. Hoeber, Inc., 1938. Pp. 111. Price $1.00.

"Medicine in the Outpatient Department" is an excellent, small, introductory handbook that gives splendid, clinical, medical facts connected with diagnosis, prognosis and treatment. It may be read with much profit.

I. L. ROBBINS, M. D.

PUBLICATIONS RECEIVED

Harvest House, New York City: Superfluous Hair and Its Removal by A. F. Niemoeller, A. B., M. A., B. S.

J. B. Lippincott Company, Philadelphia: Trauma and Internal Disease by Frank W. Spicer, A. B., M. D., F. A. C. P.

W. B. Saunders Company, Philadelphia: The Treatment of Fractures by Charles Locke Scudder, A. B., Ph. B., M. D., F. A. C. S.

William Wood and Company, Baltimore: The Abnormal in Obstetrics by Sir Comyns Berkeley, M. A., M. C., M. D. (Cantab.), F. R. C. P. (Lond.), F. R. C. S. (Eng.), M. M. S. A. (Hon.), F. C. O. G., Victor Bonney, M. S., M. D., B. Sc. (Lond.), F. R. C. S. (Eng.), F. R. A. C. S. (Hon.), M. R. C. P. (Lond.), and Douglas MacLeod, M. S., M. B. (Lond.), F. R. C. S. (Eng.), F. R. C. P. (Lond.), M. C. O. G. Midwifery by Ten Teachers, under the direction of Clifford White, M. D., B. S. (Lond.), F. R. C. P. (Lond.), F. R. C. S. (Eng.), F. C. O. G., edited by Sir Comyns Berkeley, Clifford White and Frank Cook. Veterinary Helminthology and Entomology by H. O. Monnig, B. A., Dr. Phil., B. V. Sc.